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Volume 25, Number 1
Spring 1995

ALBERTA NATURALIST

Alberta's Natural History Review

Drawing by John Haywood

**Ecological Effects of Trout Stocking - Insect Conservation - Loran L. Goulden Award
New Zealand Trip - Windborn - Adopt-a-Trail Program - Alberta Issues
Big Valley Wood Rat - Robins - Garganey - Gyrfalcons
Announcements**

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ALBERTA NATURALIST

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CONTENTS

President's Page 1
Editor's Page 2
What Was That! 2
Ecological Effects of Trout Stocking in Alpine Lakes in Banff National Park, Brian R. Parker and David W. Schindler 3
Conservation of Insects: A Reading List, M.T. Myres 5
Beryl M. Hallworth, Winner of the 1995 Loran L. Goulden Award, C. Dana Bush 6
How Robins Keep Their Nests Clean, Leo Valcourt 7
Windborn, Stephen Legault 8
Adopt-a-Trail Program 9
Alberta Issues 10
Garganey In Taber Area, Lloyd Bennett 12
A Trip To New Zealand, Don Stiles 13
Wood Rat in Big Valley, Dale and Rebecca Johnston 16
Grain Terminals and Falcons, Jim Lange 17
Announcements 18
Submission Guidelines 21

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Deadlines for FAN project reports are:
Alberta Christmas Bird Counts; January 30, Andrew Slater, 152 Oakside Circle, S.W., Calgary, AB T2V 4H2.
May Species Count for Birds and Mammals: July 15, Curtis Pollock, General Delivery, Lumsden, Sask. S0G 3C0.
May Species Count-Plants: July 15, J. Derek Johnson, Northern Forestry Centre, 5320 - 122 St., Edmonton, AB T6H 3S5.

Compiler cooperation is greatly appreciated.

Patron: Hon. Dr. J.W. Grant MacEwan

The Federation of Alberta Naturalists is composed of natural history clubs from across the province. The aims of the Federation are:

(a) To encourage among all Albertans, by all means possible, an increase in their knowledge of natural history and understanding of ecological processes;
(b) To promote an increase in the exchange of information and views between natural history clubs and societies in Alberta;
(c) To foster and assist in the formation of additional natural history clubs and societies in Alberta;
(d) To promote the establishment of natural areas and nature reserves, to conserve and protect species, communities or orther features of interest;
(e) To organize, or coordinate symposia, conferences, field meetings, nature camps, research and other activities whether of a similar or dissimilar nature;
(f) To provide the naturalists of Alberta with a forum in which questions relating to the conservation of the natural environment may be discussed, so that united positions can be developed on them, and to provide the means of translating these positions into appropriate actions.

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Editorial Disclaimer

The opinions expressed by the authors in this publication do not necessarily reflect those of the editor and the Federation of Alberta Naturalists. The editor reserves the right to edit, or to reject or withdraw articles submitted. While due care will be taken of all manuscripts, photos or artwork submitted, FAN cannot be held responsible for any loss or damage to such articles.

President's Page

Harvey Gardner

A magazine article in *Alberta Report,* titled "Green Protectionism Runs Amok," speaks of industry concerns about the Special Places 2000 initiative. In the caption "Big oil and the eco-lobby push Klein", the oil industry and environmentalists seem to make strange bedfellows, but both are pushing the government to act on Special Places 2000. The cattle, mining, forestry and tourism industries are lumped together as the "little guys" opposed to the supposedly heinous scheme of the "big guys"!

I have no trouble understanding some of the mining and forestry spokesmen not wanting their industries to be restrained. I can also understand the media seeking out unconciliatory spokespersons in order to create more exciting copy. But, in view of the value of natural areas to tourism, I find the negative quotes from the tourism people hard to understand, unless the views of those individuals are weighted in favour of developers who desire large, expensive or expansive developments in "pristine" areas.

I think I can grasp cattlemen's feelings more easily--"I'm all right, Jack!" My family has ranched here for nearly a century (since 1898), and we're looking after the ecosystem very well, thank you. Now the fourth generation is determinedly managing to avoid damage to sensitive arid slopes, and riparian areas, as are most other ranching families I know.

We are fortunate though; our place is not located too near a major urban center, nor where there are 64 oil wells per square mile. Only chance has kept us free of pump-jacks and shopping malls; stubbornness has been a factor in keeping acreages away. It's very difficult to get across to a rancher that at some time one or more of these catastrophes could occur, and then they may be looking around for help. Especially after all the anti-livestock hoopla south of the border, ranchers tend now to assume "protect grass" means no cows, when some of the intent of Special Places 2000 is to protect grass for cows, and maybe the cowboys' lifestyle.

Meanwhile, everyone in the field of battle is either mightily defending or attacking the paltry 12 percent of few-know-what should be protected. What we should be doing is working together to encourage a longer and broader view in decision-making so that much larger areas of land will be appreciated and cared for without loss to managers--perhaps even without additional legislation. This utopian goal would require a huge change in attitudes--starting with restraint in finger-pointing and the them vs. us easy way of thinking.

I admit it can be difficult for a resource user to look out at a large area of wild land and think "fragile." If all we had were digging sticks and ox-drawn wooden plows, perhaps we humans would be less of a threat. But these tools are far behind us. Now we can denude a mountainside of trees in a month, causing mammals, fur-bearing and otherwise, to disappear, and creating erosion which destroys the fish spawn downstream. Loggers and fishermen eventually go the way of the fish and quadrupeds as reforestation attempts and regrowth don't keep up with the logging equipment.

Some people in Alberta who should know better, have castigated the B.C. Forest Service for imposing controls on clearcut logging. These Albertans are unwilling to recognize the shortsightedness of laissez-faire resource development. Surely we can learn from the experiences of history: much of the Sahara Desert created by human conflict and unsustainable farming practices; the loss of the biblical cedars of Lebanon, cut to fuel Turkish trains; lush grasslands around Tucson, Arizona (as of 1870) now cactus and mesquite desert, due largely to uncontrolled livestock grazing.

In short, unenlightened human greed is a poor guide in long-term management planning.

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MOHAWK CHARITY REBATE PROGRAM

In 1994 the Federation of Alberta Naturalists joined the Mohawk Rebate Charity Program as a fund raiser to offset the costs of maintaining the organization. The program allows FAN to raise funds on a continual basis with no extra cost or administrative input involved. The sign-up rate of FAN supporters was initially quite slow but has begun to gain some momentum.

On February 1, 1995 FAN received a cheque from Mohawk Oil Co. Ltd. for $118.61. This amount represents a 3 percent return to FAN on the $3,952.72 in total purchases of Mohawk products made with the special Federation of Alberta Naturalists rebate card.

We would encourage more of our supporters to sign up for this rebate program as it brings funds into our organization that help maintain its services and programs.

Editor's Page

From the Editor:

Hopefully, by the time you receive this issue, March 1995 will have gone out like a lamb, and we will be appreciating the sights, sounds and smells of spring. The spring season is normally a hopeful time, but this year in Alberta it is a time of uncertainty and controversy: not just in terms of cuts to health care and education, but also the environment.

Environmental protection has long been an uphill battle in this province, and the battle continues. Witness the present controversy over logging on private land. Alberta trees are being cut to satisfy mills in B.C. (and to some extent the United States) hungry for new sources of wood. CBC television estimated that in five months enough timber to build 15,000 homes had left Alberta, and that, all told, locals had pocketed $36 million in feeding these out-of-province mills. What this means is that the B.C. industry is taking Alberta trees without regard for environmental standards; Alberta has no regulations on how many trees can be cut on private land, how they should be cut, or regeneration after cutting.

This February the federal Department of Indian Affairs shut down the clearcut logging taking place on the Stoney Indian Reserve. The province's response to private logging? A permit is now required. A permit may track the logs, but it won't stop the destruction.

Then there is the $225,000 U.S. paid by an American hunter for the privilege of shooting a trophy bighorn ram this fall. This was one of two permits auctioned off this winter with the sanction of the Alberta government. An elk permit, which brought in $23,000 U.S., was also offered to American hunters. Two permits (one elk and one big horn sheep) will be raffled off in Alberta later this year.

In February provincial Minister of Environmental Protection, Ty Lund, said the auction of the permits would be a one-time event. In early March he said permits will be auctioned off again next year. Some of the money from the sales goes to advertising, some to a non-profit conservation organization, the Rocky Mountain Elk Foundation, and the rest to Alberta wildlife enhancement projects. Clearly, the conservation of large ungulates and wildlife enhancement projects are extremely important, but should we be selling off the wildlife we're supposed to be protecting in order to raise money?

We are also anticipating imminent adoption of Special Places 2000 policy by the provincial government. Rumour has it that this policy will be a very watered-down version of the original draft. The question is, will this policy be adequate to protect Alberta's endangered spaces?.

R. Edrea Daniel

What Was That!

An article by Phil Boston, "Snowy Egret at Jessie Lake," in the last issue of the *Alberta Naturalist* has raised some questions. Some readers suggest that this is a case of mistaken identity. One of the distinguishing features of the Snowy Egret is the black beak, and one of the photos in the article shows a light-coloured beak. Efforts are being made to contact the author to reexamine the original photo and clear up the mystery.

Gladys and Paul Boisvert of St. Paul had an unusual sighting on December 23, 1994 as they were leaving home for the local Christmas Bird Count. Sitting on their garage roof was a Chukar.

Sightings in the Peace Parkland area include a Gyrfalcon near Wembley by Joan Kerr. She, along with Jeanne Smith, saw a Golden Eagle and American Dippers in February near Grande Cache. Rick Scott spotted a Bald Eagle on December 21 just south of Grande Prairie. Andy Rainiseth saw a Bald Eagle near Grande Cache on January 27 and Brewer's Blackbirds at Rycroft on January 30.

The Lethbridge Field Naturalists reported on four regional Christmas Bird Counts. Janice and Fraser Smith of Waterton Park recorded a Chestnut-backed Chickadee at their feeder. The Claresholm count had two first time sightings--a Cooper's Hawk and two White-throated Sparrows. Lethbridge reported four firsts: Red-breasted Mergansers, a Tundra Swan, a Townsend's Solitaire and Purple Finches.

The results of the Calgary Christmas Bird Count were published in the Winter 1995 issue of *PICA* by Ian Halladay. Two new species were recorded--Sharp-shinned Hawks and a Mourning Dove. Also in this issue was the Alberta Seasonal Bird Report for October - November, as compiled by Peter Sherrington. Some of these records included a Yellow-billed Loon at Ghost Reservoir; a Cattle Egret at Nordegg on October 22 and at Athabasca on October 23; a Harlequin Duck at Cold Lake; a Red Phalarope at Frank Lake; a possible sighting of an Anna's Hummingbird at Barrhead and two House Finches in Calgary.

''Notable'' sightings in the *Red Deer River Naturalist* include Ian Richards' Sharp-shinned Hawk in Red Deer on December 11 and January 1, and a Great Blue Heron on December 15; Jason Rogers' Red-tailed Hawk near Innisfail on December 15 and Townsend's Solitaire in Red Deer on December 17; and Kerry Wood's Varied Thrush east of Canyon Ski Hill on January 16.

The results of the various Christmas Bird Counts will be published in an upcoming issue of the *Alberta Naturalist.*

Ecological Effects of Trout Stocking in Alpine Lakes in Banff National Park

Brian R. Parker and David W. Schindler

Before the protection and preservation of ecosystems became the primary objective of parks managers in the 1980s, Canadian national parks were expected to encourage and develop tourism. To further this mandate, many lakes were stocked with non-native trout, char and other salmonids to either create or enhance existing recreational fishing opportunities.

At the time, little or no thought was given to the potential impacts trout stocking would have on the native biota. Unfortunately, introduced lake and brook trout often replace native bull trout. Many bottom dwelling and free-swimming invertebrates, particularly large ones such as *Gammarus*, *Chaoborus* and *Daphnia*, may be subject to intense predation and eventual elimination. In alpine lakes (which are usually fishless in their natural state) only a few species are present, and the food chain is very short. The loss of a single species can have significant effects on the biology of the ecosystem. We have followed the impacts of trout stocking in Pipit and Snowflake Lakes, two small, originally fishless alpine lakes along the abandoned Cascade Fire Road in Banff National Park, and we describe the effects introduced fish populations had on these systems.

Pipit and Snowflake Lakes are small (<11 ha), unproductive alpine lakes (elevation 2200-2300 m) situated on the east side of the Vermilion Range between the Panther and Red Deer Rivers in Banff National Park. Lake biota must contend with severe environmental conditions. For example, the ice-free season lasts only three to four months and maximum surface water temperatures rarely exceed 12°C. Despite their low productivity and the harsh environmental conditions, both lakes were stocked with trout in the early 1960s. Snowflake Lake was stocked with rainbow, cutthroat and brook trout in various combinations from 1960-1966, and Pipit Lake received rainbow trout from 1964 to 1966. Stocking ceased in 1966 and both lakes now lack fish, the last known trout from either lake having been caught in 1985.

Beginning in 1966 and continuing intermittently until 1977, the Canadian Wildlife Service, under contract to the Parks Service, surveyed both lakes regularly (Anderson and Donald 1978). Thirteen years after these studies were concluded, we returned to assess the longer term effects of trout stocking, the degree to which the lakes had recovered, and the possibility of returning damaged lakes to their original condition.

Canadian Wildlife Service reports document a dramatic change in the open-water invertebrate communities of both lakes following fish stocking (Fig. 1) (Anderson and Donald 1978). As a result of predation by introduced

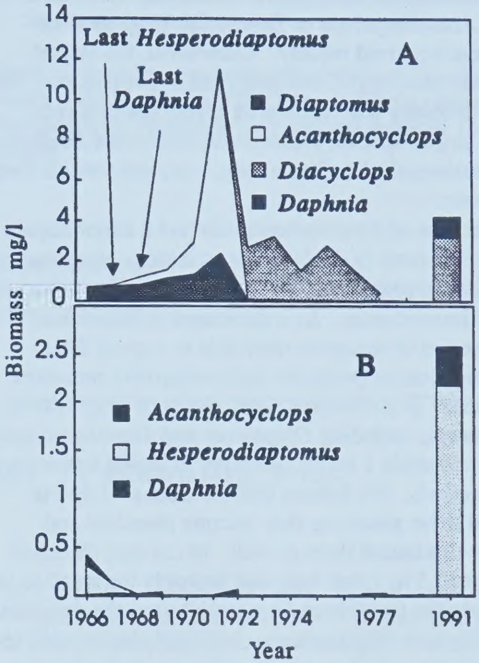

Fig. 1. Change in species composition and biomass of open-water invertebrates following trout stocking. A: Snowflake Lake; B: Pipit Lake.

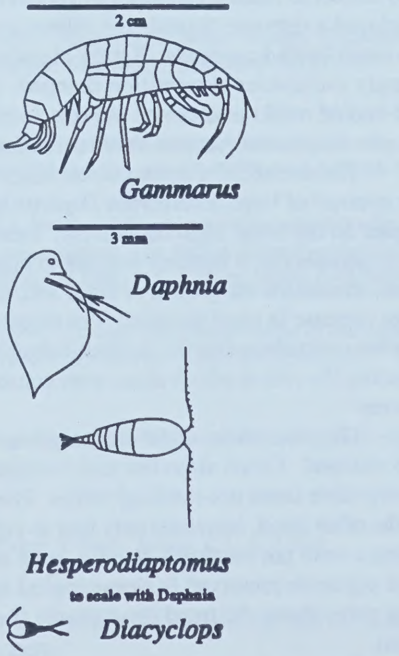

Fig. 2. Common invertebrate genera of alpine lakes and their relative sizes.

trout the original large-bodied zooplankton fauna of *Gammarus* (an omnivorous amphipod), *Daphnia* (an herbivorous cladoceran) and *Hesperodiaptomus* (an omnivorous copepod) in each lake was replaced with a less diverse small-bodied crustacean community dominated either by *Acanthocyclops* or *Diacyclops* (Fig. 2). The replacement occurred rapidly. *Gammarus*, the largest invertebrate present (1-3 cm long) and a favoured prey item for trout, probably was eliminated within the first year. The next largest species, *Hesperodiaptomus* and *Daphnia,* both approximately 1 to 3 mm long, were gone within four to eight years.

The loss of *Hesperodiaptomus* had a major impact on other organisms in the lake communities. *Hesperodiaptomus* is both a predator of and competitor with smaller species of invertebrates. As it decreased in abundance, smaller species of copepods were able to expand their populations because predatory and competitive pressures were reduced. In Snowflake Lake, waves of progressively smaller genera, including *Diaptomus* and *Acanthocyclops*, both approximately 1 to 1.5 mm long, achieved dominance for short periods. We believe that the trout switched to preying on these genera as they became abundant and eventually eliminated them as well. In the end, the small *Diacyclops* (0.5 to 1 mm long and probably too small to be of interest to the trout) became established as the dominant copepod 12 years after stocking. In Pipit Lake the shift to a new community was more rapid and less complex. *Acanthocyclops* was established as the dominant copepod only four years after stocking commenced.

Rotifers, microscopic open-water invertebrates, are also subject to intense predation by *Hesperodiaptomus* and displayed a response to predatory release similar to that of the small-bodied copepods. Rotifer abundance increased sharply and species composition changed. *Polyarthra*, a soft-bodied rotifer uncommon in lakes dominated by *Hesperodiaptomus,* became abundant in both lakes.

The excretion of nutrient-rich waste by the trout and the removal of large herbivorous *Daphnia* had a large impact on the lakes' algal community. Increased availability of phosphorus, a limiting nutrient to algae in our study lakes, stimulated the growth of algae and, in part, led to a large increase in algal biomass. The elimination of *Daphnia* contributed to the increased algal biomass by reducing the rate at which algae were consumed by herbivores.

The proportions of different algal taxa in the lakes also changed. Green algae biomass increased eight to twenty-three times pre-stocking values. Diatom biomass, on the other hand, increased only four to eightfold. These changes were not measured directly, but a study of fossil algal pigments preserved in chronological order in sediment cores shows the trend dramatically (Leavitt et al., in press).

Thirteen years later, in 1991, and after the failure of the fish stocking, Pipit Lake seemed to have returned to a near pristine condition. The original large-bodied invertebrate fauna returned and appears to be relatively stable, at least over the last four years (1991-1994). In contrast, Snowflake Lake may have been permanently altered by trout stocking. While *Gammarus* and *Daphnia* populations recovered, *Hesperodiaptomus* was extirpated and the lake community composition reflected the absence of this species. *Diacyclops* remained the dominant copepod, and rotifers, which nearly disappeared from Pipit Lake after the recovery of *Hesperodiaptomus,* were present in large numbers.

There was some debate over whether Snowflake Lake could return to its original condition through chance introductions of *Hesperodiaptomus*, perhaps from individuals being carried from lake to lake trapped in the feathers of waterbirds. Predation experiments conducted by Anderson (1970) suggested it might be impossible for *Hesperodiaptomus* to re-establish naturally because adult *Diacyclops* prey upon *Hesperodiaptomus* juveniles. This implied that only a large introduction was likely to succeed. Enough adult *Hesperodiaptomus* must be introduced to 1) reduce *Diacyclops* abundance through predation, and 2) produce enough *Hesperodiaptomus* offspring that the remaining *Diacyclops* could not consume them all. An introduction of this scale is possible only through human intervention.

In July of 1992, with permission from the Parks Service, we introduced approximately 660,000 adult *Hesperodiaptomus* from Pipit Lake into Snowflake Lake in an attempt to restore this native species. A large proportion of these animals were egg-bearing females that should have given rise to a new generation in Snowflake Lake in 1993. While we have not fully analyzed our data, the introduction appears to have succeeded. *Hesperodiaptomus* are still present two years after being stocked, and the population appears to be increasing. Further studies and monitoring are continuing to evaluate if the introduction is successful in the long term, and whether other damaged lakes can be restored to their natural condition in a similar manner.

In summary, trout stocking in alpine lakes can cause large shifts in the species composition and abundance of aquatic invertebrates and algae. Large-bodied invertebrates may be reduced to low densities or extirpated and are replaced by smaller-bodied species that are ignored by fish. The loss of large "keystone" zooplankton species that structure the lake community through predation and herbivory, and the introduction of nutrients from trout excretions that fertilize algae, can cause large changes in the aquatic biota. Even if stocking is stopped and the introduced fish die out, stocked lakes may not recover to their pristine state. Some extirpated species may be unable to recolonize lakes once they have been eliminated. If these species are important in structuring lake communities, the communities can remain fundamentally altered for long periods. It is still not certain whether it is possible to return these lakes closer to their natural condition by restocking the extirpated species, but our studies of a large scale reintroduction of *Hesperodiaptomus* into Snowflake Lake look promising. Fortunately, the lakes in the national parks are now to be preserved unimpaired for the benefit of future generations of Canadians, and stocking non-native fish species has been discontinued. It remains to restore lakes damaged by past errors, to the extent that this is possible.

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David W. Schindler, internationally acclaimed limnologist and winner of the Stockholm Water Prize, is Killam Memorial Professor in the Department of Biological Sciences, University of Alberta.

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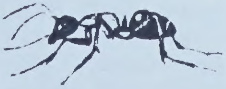
Conservation of Insects: A Reading List

M.T. Myres

Insects are a vital, but underappreciated, ecological link between the plants that many of them feed upon (often dependently upon a particular species) and the many species of insectivorous birds that depend upon them. It is thus shortsighted for naturalists to ignore insects to the extent that they often do. Only recently have books appeared devoted to their conservation. It is worth mentioning, however, that there are several societies devoted specifically to butterfly conservation.

The following reading list may introduce the subject, and the specifications may be helpful in locating the volume most suitable to specific requirements. None of the books are cheap, so it may be necessary to pass the ISBN numbers on to a library for purchase. Only three of the books (New; Kirby; Samways) are available in paperback. Three (Pollard and Yates; Kirby; Fry and Lonsdale) have a specifically British focus, but are important for their coverage and methods. Rather significantly, New lives in Australia and Samways in South Africa. The volume edited by Collins and Thomas has contributors from around the world, and so has the widest treatment of different regions and habitats.



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Pollard, E., and T.J. Yates. 1993. *Monitoring butterflies for ecology and conservation: The British butterfly monitoring scheme.* Chapman & Hall, U.K. 274 pp. ISBN 0-412-40220-3.*

Pullin, A.S., ed. 1994. *Ecology and conservation of butterflies.* Chapman & Hall, U.K. 384 pp. ISBN 0-412-5670-1.*

Dr. Tim Myres is a noted ornithologist and naturalist, and original founder of FAN.

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* Note: Nelson in Toronto handles Chapman & Hall in Canada. Call 1-800-268-2222.

Beryl M. Hallworth

Winner of the 1995 Loran L. Goulden Award

C. Dana Bush

After a 30-year career teaching botany and geography in England, Beryl Hallworth changed both career and country, moving to Calgary to follow her husband, Herbert. She began to look for something new and challenging as an occupation. Through Dr. Charlie Bird at the University of Calgary, a friend with whom she shared a common love of plants, Beryl was to spend the next ll years as assistant curator of the University's herbarbium--identifying plants, arranging labs, encouraging students and developing intriguing displays.

In 1972 she became an active member of the Natural Areas Committee of the Calgary Field Naturalists' Society. Throughout the many years of work assembling the material for *Calgary's Natural Areas*, she encouraged participation from others with her quiet enthusiasm and unremitting work. In the less active years that followed, and before the publication of *Nose Hill - A Popular Guide*, her persistence kept the natural areas' group alive and ready to tackle the political issues necessary to preserve Nose Hill Park, a beautiful hill of fescue prairie and parkland that overlooks the north side of Calgary.

After retiring in 1978, Beryl Hallworth received a grant from the university, with which she was able to catalogue the "Norman Sanson" collection from the Banff Museum; 6,000 herbarium specimens in four years. Her interest in botany and history led her to write various publications about pioneer naturalists, including articles on Norman Sanson, Marion Moodie and David Thompson, plus a booklet entitled *Pioneer Naturalists of the Rocky Mountains and the Selkirks* written with Monica Jackson.

Active as always, she still works at the herbarium identifying specimens that staff are too busy to deal with. She has just completed the final (she hopes) draft of *Plants of Kananaskis Country, the Rocky Mountains, Alberta* with Dr. C.C. Chinnappa. In her spare time, she endeavours to protect a tiny patch of prairie behind her house, commonly known as Beryl's Prairie. She is employing the same strategy that she used so successfully with Nose Hill--write a book so that people will learn how special a place is; then they will rally to its defence.

People who work with her remark on her quiet enthusiasm, her gentle persuasion, her persistence and her very keen mind. Beryl Hallworth has encouraged students, fellow writers (myself included) and activists bent on preserving natural areas, with her generosity and good humour. She was included in the *Who's Who of Canadian Women* in 1988 and is a worthy recipient of the 20th Loran L. Goulden Memorial Award.

(The Loran L. Goulden Memorial Award is awarded annually to a recipient who has made outstanding contributions to natural history in Alberta.)

Beryl Hallworth receiving the Loran L. Goulden award from Harvey Gardner, President of the Federation of Alberta Naturalists, January 21, 1995.

Photo: Don Stiles

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How Robins Keep Their Nests Clean

Leo Valcourt

In the spring of 1994 I decided to photograph the activities in a very busy American Robin's nest.

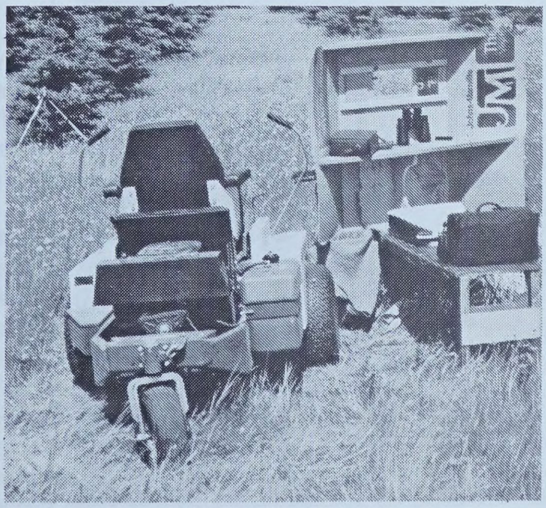
To take the pictures I used a Minolta 7000 MAXXUM with a 70-210 mm lens set at 150 mm. The camera was on a tripod placed about 1.5 m from the robins' nest so as not to disturb them too much.

I sat 25 m away in a blind with a remote control and a set of binoculars, through which I could easily observe the nest and birds. I sat there for four hours admiring both parents taking turns feeding the chicks. I never realized how much the chicks eat.

After a few feeds I saw one parent reach deep into the throat of a chick and come out with something white. So I started taking pictures of that. Then I saw the robin fly away with the white thing and drop it on the lawn, so I went to examine it. The object, about the size of a 25 cent piece, looked like a white, transparent sac with dark bird droppings sealed inside. I wasn't sure what it was, so I showed the pictures to a lot of people, but no one else knew either.

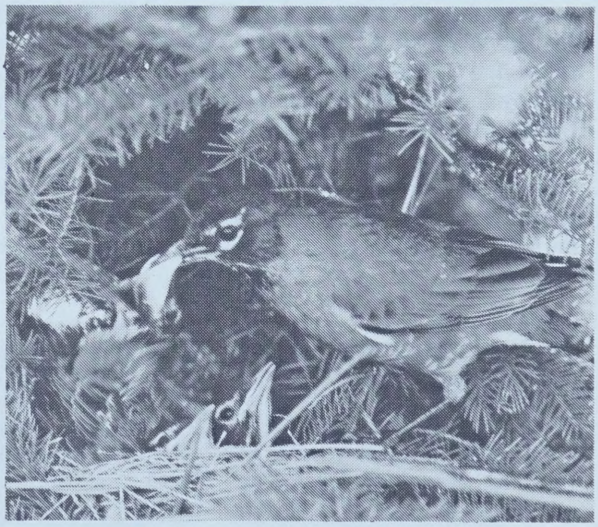
On November 9th, 1994 I made an appointment with the Federation of Alberta Naturalists where I spoke to Glen Semenchuk. He told me the object was a fecal sac, showed me a picture of one, and explained what it was.

I think it is very interesting to know how birds keep their nests so clean, so I wanted to share my experience with others.



Camera set-up and blind

Photos: Leo Valcourt



Robin parent removing fecal sac

Leo Valcourt, now retired, is an amateur photographer who enjoys observing the plants and animals on his farm.

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Windborn

Stephen Legault

My first trip though the Highwood Pass area was in August of last year. My girlfriend Sue and I were driving to Waterton Lakes National Park, and we took the route through Kananaskis Country, over Highwood Pass. It was difficult to drive with such distractions: the peaks of the Highwood range are distinctive. With each bend in the road I marvelled at the hiking possibilities. There are few things on earth more exhilarating than gaining a high alpine ridge and walking its length, being spoiled by continuous panoramic views. In the Highwood region it seems as if the entire world is comprised of these apexes, one giving way to another.

On our drive I made a mental note of several walks I would explore in the future. In September I returned with a friend, Jim Wood, to explore this miraculous area. We talked first of hiking the Picklejar Lake Trail and topping out on a fire-scarred ridge that runs parallel with the Highwood and Misty Ranges. The sign at the trail head--*Dangerous Bear in Area*--prompted further study of the topographic sheets. Both Mist Ridge and Eagle Ridge were appealing; we decided on Mist Ridge as it led away from the highway.

* * * *

A stockman's trail carries us through groves of trembling aspen and willow just beginning to lose their summer foliage. It is early in the afternoon when we begin the walk, and the translucent rays of fall sunlight seem nearly magical, dancing through the trees. Soon we emerge from the valley bottom, into fir and spruce and pine, and begin climbing steadily up towards our goal of Mist Ridge.

The alpine begins early in the wind-scoured front ranges. At a little over 2000 meters we enter into grassy alpine fields. The trail contours along these golden meadows; waves of wind pour over them like water. The peaks to the east jut out in classic front range formations--the Highwood Range and Mount Gibraltar--sheets of limestone broken and bent into pyramid-shaped buttresses. From a low saddle Jim and I gain a view into the Sheep River drainage, then traverse a bench and climb a knob that gives us a view in all directions. The wind tears at us from the west, and we crouch down beneath a few gnarled and twisted krummholz. The landscape lies before us like an invitation.

The Highwood Range

Photo : Stephen Legault

To the west lies the Elk Range, the Continental Divide and the far reaching mountains of British Columbia. Close in the west is the Misty Range: Mount Rae, Storm Mountain and Mist Mountain. To the south is Plateau Mountain, with its gas wells and desecrations. The wind blows relentlessly, unstoppable, with anger and vengeance. I stare into it, into the heart of the gale blowing from the west. It is easy to understand why these open alpine meadows start so low; the wind uproots all but the heartiest of trees. Whitebark pine manages to survive, being resistant to the tirades of wind and weather, as do a few other hardy shrubs, grasses and flowers. But not many, and they are few and far between.

As air currents move from the Pacific Ocean over the interior ranges, they lose much of their moisture. The Coast Mountains are living sponges, drinking much of what the Pacific has to offer. The vegetation is lush, rich and extravagant. Through the interior plateau of B.C. the air masses accept more moisture, in return offering it to the Columbia Mountain Ranges. What remains is emptied over the Continental Divide. The air that reaches the Front Ranges is dry, hot and light, and blows hard.

Air that is heated from reflected solar radiation rises. In the late afternoon, air currents are heated, rise and push eastward--out towards the foothills and the prairies beyond. When Jim and I walk along Mist Ridge, we must watch our footing; the wind is relentlessly trying to topple us.

Looking out over these sculpted mountains it is easy to see how much of the landscape was created by the wind. These great walls of sedimentary rock, laid down over 500 million years ago, then pushed skyward by tectonic forces 60 million years ago, are like a wave of liquid stone, frozen in time. The bare and brushed clean hills, beaten and swept for millennia, seem to have been born of wind.

But the wind is only passing through. It carries the seeds and pollen that make the meadows and the valleys burst with life in the spring. It holds what little moisture nourishes the bounty of the summer. And in the fall, when life has passed, it picks up the hollow, defeated husks and sends them skyward once again. On the wind we send our hopes and our prayers, to meld with those of hawks and eagles, the pollen and the seeds, and be planted elsewhere to take root and to grow.

As the sun sets, the winds die; the currents reverse and the air that rose during the day slips down into the valleys at night. Finding our way back to the stockman's trail, Jim and I reach the tranquil groves of aspen and willow. Night is replacing day, and stillness the squall. In near silence we reach the road and find our way to the truck. In a lifetime we may never come to know all of these ridges of alpine. But we can try, and, in the effort, realize far more about this marvellous world of wind and sky and stone.

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Adopt-a-Trail Program

Alberta Environmental Protection, Land and Forest Services has launched a new program in the Rocky/Clearwater Forest called Adopt-a-Trail. Recreational users can become trail stewards and donate their time to maintain a trail, or section of a trail, and help minimize the environmental impact of recreational use.

The main responsibilities of a volunteer trail steward are to inspect the trail at least once a year, ensure all fallen trees blocking access along the trail are removed, clean up all litter, and control any potential and existing erosion problems. Volunteers can work at their own schedule and pace and are required to use their own tools. It is preferred that an initial inspection be done early in the season before heavy traffic begins so problems such as fallen trees, plugged drainages, etc. can be corrected. There is no formal training, however, volunteers are encouraged to ask for advice and assistance from Forest Services staff. There will be a Trail Maintenance Guide developed by Land and Forest Services, which will be made available to volunteer crews at a later date. This trail maintenance guide will provide suggested procedures for undertaking maintenance of trails and building facilities.

Similar programs in the United States and British Columbia have proven very successful. This initiative is new to Alberta, and the Land and Forest Services staff at the Rocky/Clearwater Forest will pilot the program in hopes of establishing it throughout Alberta. Thus far, in the Rocky/Clearwater Forest, six local organizations have adopted trails. As it evolves it is hoped the program will include individuals and clubs who are associated with all forms of recreational activity, including equestrian, all-terrain vehicle and hiking.

For further information on the Adopt-a-Trail program contact Dave Coish or Darrell Smith at Rocky/Clearwater Forest Headquarters, Land & Forest Services, 4919 - 91 Street, Rocky Mountain House, Alberta or phone (403) 845-8250

Cardinal River Coals

Cardinal River Coals Ltd. is proceeding with its intent to develop a surface coal mine and processing plant in the area of Mountain Park, south of Hinton. This area was chosen for the proposed Cheviot Mine because of the following factors:

* the reserves at the existing mine are near depletion;
* this location can be serviced by the company's work force based in Hinton;
* the coal reserves will support a long-term operation;
* the block has appropriate public land and resource use zoning to allow development; and
* the mine location is close to existing road, railway and utility infrastructure.

On January 23, 1995 Alberta Environmental Protection issued the final ''Terms of Reference for the Proposed Cheviot Mine Development Environmental Impact Assessment.'' This document describes the requirements of the EIA, which are based both on public input and the requirements of federal and provincial government agencies.

Some of the specific requirements of the EIA are as follows:

* In relation to "... those environmental parameters that could be affected by the development ... [the company must] provide a sufficient base for the prediction of positive and negative impacts and the extent to which negative impacts may be mitigated."
* The proponent must supply information on existing land use, baseline climatic and air quality conditions, vegetation, soil types, wildlife and fish species including an evaluation and quantification of habitat availability, surface drainage, baseline water quality, land reclamation, historical resources, and social and economic issues.
* Also, it must " ... indicate how development and mitigation plans ... will address no net loss of habitat for fish and wildlife ..."; and
* "Outline postdevelopment revegetation plans, including species mix, age, density, site preparation ... [and] describe reclamation considerations, concepts and objectives."
* The company must also " ... discuss the concerns and issues expressed by the public; what action was taken to address these; and how resolution of the concerns and issues was incorporated into the project development, impact mitigation, and monitoring."

A recent public interest survey conducted by Cardinal River Coals Ltd. showed that 79 percent of the respondents thought that environmental impact was the most important issue associated with the Cheviot Mine Project. At an open house conducted in Hinton in November, 1994, the following criteria were rated high or very high in importance: land reclamation--94% of respondents; wildlife--80%; surface water quality--78%; groundwater--74%; and employment--74%.

The Federation continues to be involved in the public consultation process and has requested that Cardinal River Coals Ltd. indicate to us this spring how they plan to address the detailed terms of reference.

Ryley Toxic Waste Dump

Laidlaw Environmental Services Ryley Ltd. (LES) has applied to amend its existing licence (which allows it to operate a hazardous waste transfer station and a Class 1 designed hazardous waste landfill), requesting that it be allowed to operate a tank farm, to pretreat hazardous waste and to permanently dispose of hazardous waste in a landfill. It has also requested it be permitted to construct four new cells on its property to accept hazardous waste.

This facility is located in the Beaverhill Lake drainage basin, which is a wetland of international importance, especially as waterfowl habitat.

In May of 1994 Alberta Environmental Protection issued final terms of reference for the Environmental Impact Assessment after soliciting public input into the process. Laidlaw has recently released its draft Environmental Impact Assessment. FAN is presently reviewing this document and will communicate its concerns to Laidlaw.

Pine Coulee Water Management Project

The purpose of the Pine Coulee project proposed by Alberta Public Works, Supply and Services (APWSS) is to construct water management facilities on Willow Creek, near Stavely, which would result in an off-stream storage dam in Pine Coulee. The joint Canada-Alberta panel empowered to conduct a public review of this proposal rendered its decision on February 28, 1995.

The panel concluded that the project is in the public interest, having regard for the social and economic effects of the project, and its effect on the environment. In its report the panel states, ''... the environmental effects of the proposed project are persuasive and compelling in relation to the public interest. The net environmental effects of the project are positive and significant, particularly with respect to water quality, quantity, and fisheries, when weighed against the minor residual project effects on soils and drainage, vegetation and wildlife.''

Project approval is conditional upon APWSS and the operator preparing and implementing various mitigation and enhancement plans for fish, wildlife and vegetation. The various mitigation programs that the applicant has proposed must have prior approval from Fish and Wildlife Services, and the costs associated with them must be budgeted into the project. These additional costs have left some doubt as to whether the project will proceed.

Issues

The completion of this review marks the first successful joint review of a project by both the Alberta Government and the Government of Canada, as provided for in the Canada-Alberta Agreement for Environmental Assessment Cooperation.

Special Places 2000

The adoption of Special Places 2000 as government policy is imminent. The new draft will leave many conservationists disappointed. It seems to be a public relations exercise rather than an effort to accomplish the intended goal of preserving a representative sample of Alberta's natural regions.

The proposed government policy framework and implementation process shows that this government has no real commitment to Special Places 2000. The original intent was to follow the pattern of the proposed Endangered Spaces campaign. However, we will now receive a "made in Alberta program" that will only give an illusion of protection.

The new government policy states that Special Places 2000 balances preservation of Alberta's heritage with three other goals or cornerstones: outdoor recreation, heritage appreciation, and tourism and economic development. The objects of the four goals are to be achieved in an integrated and balanced manner, but no statement is made as to what cornerstone will take precedence. Once the network of special places is established there is no commitment to protect them by legislation, but, instead, reference is made to a ''wide spectrum of designations using both legislative and policy mechanisms." Protection by policy is like using a shield of tissue paper; it can be drastically affected by the prevailing climate.

The implementation process in the proposed policy does not convey a commitment to the preservation of natural areas. Of major importance is the statement that ''the Special Places initiative will not be the foremost policy over other policies and initiatives.'' The plan brings into existence a number of local committees feeding into a provincial coordinating committee. Membership on these committees is intended to reflect the sectors who have an interest. The local committees, who are nominated by the local municipal government, will be given a veto power over any nomination, no matter what the impact on the network.

There is no commitment or even any mention that the scientific process should be foremost in identifying and designating protected areas. Instead, a "new and improved Integrated Resource Planning process will be the mechanism of land use planning for Alberta and will be the foundation under which this initiative will be implemented."

The government will further confirm that in the designation process it will honour all commitments to tenure holders, utilizing the existing renewal process. If there is an existing grazing lease, oil and gas lease, forestry management agreement or coal policy designation, then this portion of public land will not be considered for special place designation. How much of the province does that leave for possible inclusion into a network of special places?

Logging on Private Land

There is a major concern regarding the environmental impacts resulting from the present high level of unregulated logging activity on private land. Present forest practices in B. C. of allocating timber reserves based on mill production has made Alberta timber quite attractive to B.C. mills. Even with the high cost of transportation, thousands of truckloads of Alberta timber have been taken from private lands to satisfy the needs of these sawmills. This lucrative trade has also resulted in illegal exports from crown land.

This problem has been brought to the attention of the Minister of Environmental Protection by several individuals and groups, with little or no result. The Premier has acknowledged the problem and was quoted as saying, "the protection of the environment is of paramount concern." He has struck a Ministerial Committee to look into the problem of enforcing environmental legislation, but adds that individual property rights must be protected. Unregulated timber harvesting continues as the politicians decide on a course of action.

Limestone Valley Resort Proposal

B.H.B. Canmore Ltd. has proposed a golf course/ resort complex at Dead Man's Flats on crown land. This project, initially called the River's Bend Golf Course, is just east of Banff National Park in the Bow/Canmore Corridor. In 1990 the proponent was ordered to submit an Environmental Impact Assessment Report to the Department of Environmental Protection. The submitted assessment was deemed incomplete, and more information was requested.

After the enactment of the new Environmental Protection and Enhancement Act, the government did not order an updated EIA, but instead prepared an internal screening report on the project. Under the Natural Resources Conservation Board Act, if an EIA is not ordered by the Department of Environmental Protection, the project is not reviewable by the Board. This is being allowed to happen even though concerns have been raised by the Bow Corridor Wildlife Technical Committee regarding the potential impact of this project on wildlife corridors. Also, the government has failed to establish the Regional Ecosystem Advisory Group required by the NRCB in the Three Sisters Resort hearings to consider the cumulative effects of all development in the region.

Garganey In Taber Area

Lloyd Bennett

On May 17, 1993 I had gone to a small slough in our pasture with hopes of spotting a few migrant shorebirds. Stopping at a fence about 200 m from the slough, I began scanning the water. After a couple of seconds a small duck caught my attention. My mind began to race. Could it be possible? Is that really what I think it is? A second look took away my doubts: the duck was a handsome male Garganey.

The Garganey, *Anas querquedula,* according to the National Geographic Society's *Field Guide to the Birds of North America,* is a Eurasian species that occurs very rarely along the east and west coasts of North America, and is accidental in the interior of the continent. Everywhere, that is, except the Taber area.

The history of the Garganey in the Taber area goes back to May 6, 1990, when I first located a male in a puddle in a ditch a few miles northeast of Taber. I had been driving along a road when I noticed a small duck in the ditch. Something seemed different about it; I remember noticing a light mark on a rusty head. My first thought was that the bird might be a hybrid Cinnamon-Blue-winged Teal, so I turned around for another look. Much to my shock and surprise, it was not a hybrid teal at all. It was a totally unfamiliar bird, one that had me completely stumped. My next thought was that I should get some pictures of it, so I raced back home for my camera. However, when I returned, the bird flew away before I could get it photographed. I decided to go back a couple of hours later, and this time I was able to get several pictures. I approached the bird very slowly in the car and took photos through the open window.

Now the next problem was to identify this mystery bird. I called someone to help me out, my Regional Coordinator for the Alberta Bird Atlas Project from Medicine Hat, Rob Gardner. After searching in a European field guide, he announced that the bird was a Garganey, a Eurasian species.

The description of the Garganey is as follows: it is about the size of the Blue-winged Teal, with a brownish-rusty head and neck with a thick white line that starts above the eye and tapers to a thin line as it curves down towards the back of the neck. The chest is brown with many fine brown spots, much like a male Blue-wing. Other prominent marks are a large, gray patch on the side and a gray patch on the forewing, which shows in flight. The bill and legs are dark.

The male Garganey stayed in the Taber area for about three weeks. It could be found most of the time in a small slough less than 90 m from the ditch where I first found it. In the slough it associated with other typical puddle ducks in shallow water, such as teals and pintails.

The last day that I saw the bird was May 26, the first day of the spring bird count. On that morning I went to the slough to find him, hoping to make him the first Garganey found on an Alberta count. To my dismay, he was not in sight; so I decided to walk to the edge of the slough. As I approached the shore, a small duck flew up. It was HIM!! I was immensely relieved and excited.

Garganey Photo: Lloyd Bennett

I wondered if I would ever see a Garganey again, but somehow I had a feeling that I would. Just the next year, 1991, I was surprised to learn that a male Garganey had been seen in Stirling Lake on the spring bird count by a couple who had also seen mine the year before. But the bird was not sighted again. Later that summer, on a visit to the "Garganey slough" on July 25, I noticed a plain brown duck with a difference; it had a double eye stripe. From studying field guides the previous year the bird's identity was immediately clear; this was a male Garganey in eclipse plumage! Generally, the bird resembled a female Green-winged Teal, but with two light stripes near the eye, bisected by a dark line. Unfortunately, the bird had disappeared by the next day.

That brings us to 1993. Once again, the Garganey remained for about three weeks, from May 17 to June 7. It stayed in a slough located about two and a half kilometers away from the original "Garganey slough." I have often wondered why a bird which is considered accidental in Alberta should be found three times in four years in almost exactly the same area. My feeling is that all the sightings were the same bird, which for some unknown reason turned up on the wrong continent and now stops in the same areas, wondering why it can't find any companions of its own species. Will it be found again in the area? Stay tuned.

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A Trip To New Zealand

Don Stiles

This article gives an overview of a 23 day trip in the fall of 1994, which included 13 days on a bus tour of New Zealand, plus visits to Fiji and Sydney, Australia.

The Bus Tour

Our bus trip covered most of the main tourist spots in the country, but missed the Bay of Islands in the north and Abel Tasman National Park on the South Island. (Both of these are recommended if you have the time.) We visited North Island first. Then to get to South Island we took a three hour ferry ride across Cook Strait and Queen Charlotte Sound where some of our group saw Blue Penguins.

Stops on the North Island of interest to the naturalist were

* A geothermal power plant which made use of the escaping steam from geysers.
* Rotorua--an area of geysers, similar to Yellowstone, but not as extensive.
* Maori meeting house and display. Here they showed us how the Maori make grass skirts out of the flax plant (actually a plant similar to the agave in Mexico).
* Waitomo Cave--where the park naturalist poled a group of 20 of us along a river in a cave in the dark; when we looked up there were thousands of glow worms attached to the ceiling.
* Tongariro National Park.

Stops on the South Island included

* Westport--with its colony of New Zealand fur seals.
* Fox Glacier--where, in spite of heavy rains, we hiked to the foot of the glacier.
* Queenstown--a tourist town, with lots of chances to spend money on the ''big four'' tourist attractions: jet boating, river rafting, helicoptering and bungy jumping (which was invented here).
* Te Anau--the take-off point for Milford Sound. Milford Sound is the window to Fiordland National Park, New Zealand's largest national park, on the southwest coast. The scenery is magnificent, but the mountains are a major trap for any approaching storms coming across the Tasman Sea.

Unfortunately, landslides due to recent rains prevented us from reaching Milford Sound So we were offered a substitute--a boat ride across Lake Manapouri to an underground power station. The guide tried to appease us by saying that the boat ride was similar to the boat ride at Milford Sound--including large, steep mountains with waterfalls. There were admittedly some of these.

The power station was an engineering feat, as there was no dam; therefore, the scenery was kept intact. The spillway to the turbines was built through the mountain, and there was a spiral tunnel so equipment (and, nowadays, the buses) could reach the turbines. The spillway took a decade to build at a cost of 16 lives.

* Mt. Cook--New Zealand's highest mountain with snow at higher elevations. The day we left the mountains, we had a sunny morning, and nine of our group took a plane ride from Lake Tekapo back over the mountains which we had missed due to bad weather.

New Zealand's Agriculture

New Zealand's main cash crop is sheep, and there are 30 million of them. The country's rugged terrain and high moisture level mean lots of grass for these animals. The main sheep breed at higher elevations is Merino, which is good for fine wool. At lower elevations the primary breed is Romney, good for meat. We learned that in New Zealand sheep meat is divided into three categories: lamb (up to 8 months old), hogget (8 to 14 months) and mutton (over 14 months). In one instance we saw a plane spreading fertilizer on the grass, top dressing, they call it. (Sheep are removed for this process.)

In flatter terrain, dairying is common--mostly Friesian cattle with a few Jersey herds. Use of butter and milk are still encouraged. Two motels set out a half-pint of real milk to be used for our morning coffee.

Red deer have been captured from the wild and introduced as a cash crop. We saw lots of herds, enclosed in high fences (about 2.5m). We were told that the deer could only be handled (captured for market, etc.) at night because they are so skittish. The meat is very lean and usually served as a stew. It is being called ''cervena'' for the export market rather than venison.

Part of the red deer operation includes harvesting of antlers for the Asian medicine market. We stopped at one store run by someone from Singapore (it was a combined restroom and wool souvenir purchasing stop), which had a pharmaceutical counter with these products for sale. Next to the counter was a panda piggy bank for World Wildlife Fund. (Your thoughts on this are probably the same as mine.)

The kiwi fruit is also grown in New Zealand. It was originally called Chinese gooseberry, but when the name was changed to kiwi fruit, sales began to take off. For success in growing kiwis a windbreak around the field is required.

Natural History

New Zealand split off early from the large continent, Gondwanaland, when the earth was mostly one continent. (Surely you've heard the geologist's rallying cry, ''reunite Gondwanaland''!) This split occurred before the evolution of mammals, including marsupials. Therefore, bats are the only land mammals native to New Zealand, and there is only a limited number of species of native birds.

Plants--I did not learn many plants on the bus tour.

Palm trees are common, especially on the North Island, and are found on the South Island near sea level. Deciduous trees are found in local areas, usually on west-facing slopes, and pine trees are found on the shadier south and east-facing slopes.

Occasionally, we saw rows of pine trees *(Pinus radiata)*, and next to them a clearcut area. We were told the growth time of these trees was 20 years due to the rains, thus allowing a rapid turnaround for the forest industry.

Mammals--As previously mentioned, the only native land mammals are bats. Introduced mammals include red deer, pigs, stoats (like a weasel) and feral cats. All of these mammals are predators on the native flightless birds such as the Kiwi. Hunting of red deer and wild pigs are New Zealand sports.

Birds--I did keep my eye out for birds. Although being on a bus tour made birding problematic, occasionally there was an early morning bird walk or an available hour at other times. I saw 52 species--17 introduced, 21 native (Australia and/or South Sea Islands as well as New Zealand) and 14 endemic (New Zealand only).

The most common species was the House Sparrow, which finds lots of cavities for nesting in local palm trees. Very common on the ground were the Blackbird and Song Thrush, both introduced from England. Most other passerines seen in parks were also introduced from England, including the Chaffinch, Greenfinch, European Goldfinch, Common Redpoll and Yellowhammer.

Larger species seen from the roadside were Paradise Shelduck, Pukeko (called Eastern Swamphen in Australia) and Spur-winged Plover. The Paradise Shelduck, the common native duck, is larger than a Mallard (also commonly seen). It is an interesting species in that the female is the brighter of the two sexes, having a white head and a brown body, while the male is pure black. Both male and female have prominent white wing patches seen when flying. On two occasions I saw the Paradise Shelduck with young. On one occasion the female was leading her brood across the beach to a lake. After she reached the lake, the male suddenly appeared and dived on a Shag (Cormorant), which was some distance from the female and her brood. The Shag had to dive and swim out farther in the lake.

There are several species of Shag, and three species of gull: the Southern Black-backed (large), the Red-billed Gull and the Black-billed Gull (both small), whose identification is relatively easy.

There is only one species of raptor commonly seen, the Australasian Harrier, slightly larger than our harrier, but with a similar flight pattern.

The New Zealand Magpie is similar in size and shape to our crow and comes in two subspecies: White-backed and Black-backed (less white on the back, and found only occasionally). Magpies in New Zealand have white on the back rather than the underside as ours do.

The most interesting native and endemic species seen were Weka--a flightless rail the size of a chicken; Kea--a flock of these endemic parrots were present at Fox Glacier. (Our bus driver said they usually stay in the bush, but tend to come out in poor weather. Keas attack the soft parts of vehicles and camping equipment so they are not always popular.); New Zealand Pigeon--slightly larger than the Rock Dove, which was also seen; Grey Warbler; Fantail--like a chickadee, but with a long, wagging tail; Pied Tit--chickadee equivalent; Silvereye; Bellbird; and Tui--a black bird slightly larger than a Blackbird, with a distinctive white tuft on the throat and a white patch on the wing. Several native species seen only in a zoo situation were Brown Kiwi, Red-crowned Parakeet, Yellow-crowned Parakeet, Morepork (an owl species), Takahe and Black Stilt, the latter two being endangered species.

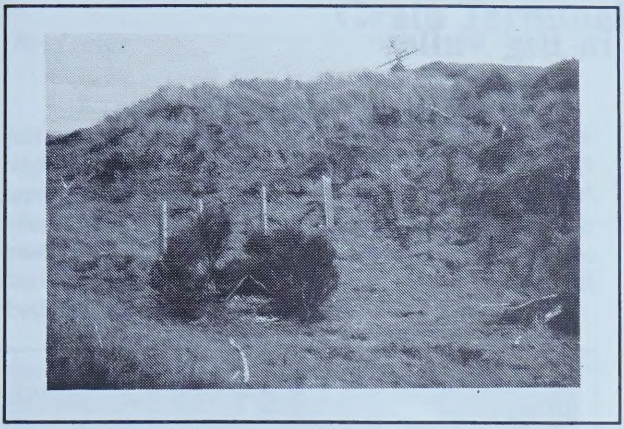
Endangered Species

As New Zealand has a minimum of habitat undisturbed by man, and in some cases a minimum of certain types of habitat, there are a number of endangered species. In these cases, efforts are being made to increase the number of individuals. Three cases of endangered species management initiatives are given below.

Yellow-eyed Penguin--This penguin species is found only on the southeast coast of New Zealand, on the Otago Peninsula, and two other places south of there, both on islands. The visit to this project on the Otago Peninsula was a highlight of our visit to the South Island. We were given an initial presentation and then taken out in groups of 15 or so by a leader to see where the penguins return from the sea in the evening. Parent birds take turns going out to sea to feed and return to regurgitate food for their young. We viewed the nests from blinds, and there were covered walkways to keep the penguins from seeing us as we went from one blind to the next. Chicks were just at the hatching stage so were still too small to identify, but we did see an occasional egg. The biologists had built artificial nests in the shape of A-frames to keep rain off the nests and covered these with bush for a more natural look.

Black Stilt--Black Stilts are unique to New Zealand.

Beach (Otago Peninsula) traversed by Yellow-eyed Penguins to reach nesting grounds. Photo: Don Stiles



Yellow-eyed Penguin nest Photo: Don Stiles

They are similar to our Black-necked Stilt, but are pure black. At the time of New Zealand settlement in the mid-nineteenth century, Black Stilts were fairly common throughout the country, nesting on many riverbeds and wetlands of the South Island and southern North Island. However, with the spread of introduced predators and changes to their habitat caused by humans, the species declined. Now they can be found only in the Mackenzie Basin located in central South Island. By the early 1980s it was estimated that only 32 birds were surviving in the wild (DOC 1994).

An intensive management program began in 1981 to stop the decline in Black Stilt numbers. This included predator trapping around nest sites and taking eggs for artificial incubation. The parent birds are given ceramic "dummy" eggs to sit on until their own begin hatching safely in the incubators. Only hours before hatching, the eggs are given back to their parents to rear in the wild. If the original nest has been flooded or deserted, the eggs are given to foster parents (DOC n.d.). Two captive breeding populations have been established, including the one at Twizel that we visited.

Takahe--This is a flightless bird, similar to the Pukeko, but slightly larger. It was considered extinct from 1898 to 1948, but then was found in dense bush on a mountain slope by an individual investigating the possibility of the bird's presence.

A Takahe rearing unit set up by the New Zealand Department of Conservation to raise more of these birds is run by a husband and wife biological team. To describe their activity, I will quote from a Department of Conservation item in the *Fiordland Focus,* a community newspaper from Te Anau, New Zealand.

> The three summer months of Takahe rearing is described by Jeremy as "challenging". Round the clock monitoring of egg and chick incubation and chick hatching often requires Jeremy to sleep the night in the hatchery - if you can call it sleep. He wakes every two hours to check incubator humidity and temperature. Hatching is a special moment for each chick with the expectant Department of Conservation staff watching nervously. The chicks are then moved to a brooder where they are fed hourly with mashed vegetables and baby food using a Takahe puppet to avoid human imprinting. Once again this is a 24 hour seemingly endless cycle of work. Up to eight brooders can be running at once - with four chicks in each. By the time they've finished feeding the first brood, it's time to start back at the beginning again. The birds soon grow and at one year are released back into the wild.

Conclusion

I felt a bus tour was an excellent way to see a country with which I was unfamiliar. We got to see most of the major tourist stops, didn't have to struggle with driving on the left-hand side of the road, and had interesting travel companions. The downside of a bus tour is the inflexibility--if there are five days of rain in the mountains, and that's when your bus is scheduled to be there, you're stuck.

I end with a poem (anonymous) we saw twice on display boards in national parks.

Rain
It rained and rained and rained
The average fall was well maintained;
And when the tracks were simply bogs
It started raining cats and dogs.
After a drought of half an hour
We had a most refreshing shower;
And then; most curious thing of all
A gentle rain began to fall
Next day but one was fairly dry
Save for one deluge from the sky,
Which wetted the party to the skin
And then at last - the rain set in.

Literature Cited:

Black Stilt. n.d. New Zealand Dept. of Conservation. Pamphlet.

Saving the Black Stilt - Kaki. 1994. New Zealand Dept. of Conservation. Pamphlet

Don Stiles is a past president of FAN and a member of the Calgary Field Naturalists' Society.

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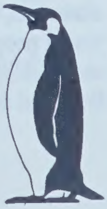
20 Wapta Rise, S.E., Calgary, Alberta T2N 2M9.



Wood Rat in Big Valley

Dale and Rebecca Johnston

On September 24, 1995 we first noticed strange noises in the bathroom in our house, an older home in Big Valley, Alberta. On September 25th we began noticing relatively large droppings on our basement floor. The next day one of us (Rebecca) spotted an animal, which she thought to be a squirrel, during a routine trip to the basement. When Dale arrived home from work that evening he placed a chair in the basement and sat quietly for some 20 minutes, during which time the animal appeared and came close enough to smell Dale's shoe. The animal showed no fear when Dale moved but would not allow itself to be caught in a box.

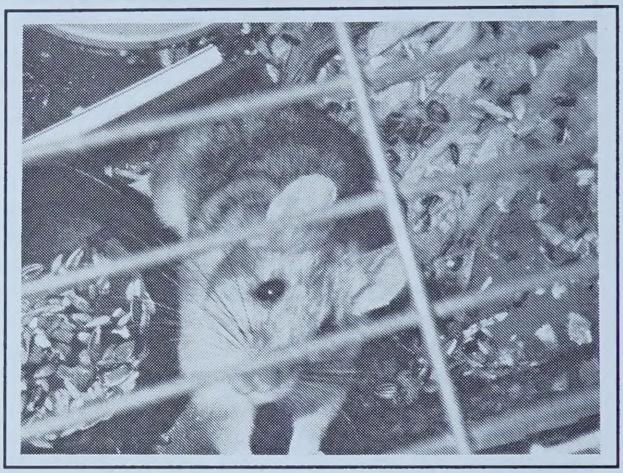
The following day (September 27th) we succeeded in catching the animal in a propped up cage using cheese as bait and a string as a remote release.

Pictures and video were taken on September 28th, and attempts were made to identify the animal. After research into Soper's *The Mammals of Alberta,* plus several phone calls to known naturalists, we concluded the animal was a wood rat.

Both of us have had extensive experience with small mammals (rabbits, ferrets, mice, hamsters, etc.) and found that the "rat" seemed to enjoy hamster food. A somewhat skunky odor was noticed when the animal was in the cage.

The wood rat, held in its cage for 24 hours, was released September 29th, unharmed, at some old, abandoned farm buildings three miles north of Big Valley. It was reluctant to leave, allowing itself to be petted before being chased toward the buildings.

(Soper's book indicates that the Bushy-tailed Wood Rat (Neotoma cinerea) *occurs in the mountains to the west. The farthest east record he mentions is "an unusual one for Ponoka." Soper mentions two subspecies* (Neotoma cinerea cinerea *and* Noeotoma cinerea drummondii), *but it is not certain which subspecies the captured wood rat was. The Ponoka record was of* cinerea cinerea. C.D. Bird.)



Wood Rat Photo: Dale and Rebecca Johnston

Dale and Rebecca Johnston, with their long experience with small mammals, were naturals to be visited by an inquisitive wood rat.

Authors' Address:
Box 40, Big Valley, Alberta T0J 0G0.

ECOSYSTEM:
The Eurasian Association of Youth Environmental Groups

Russian professional ecologists, environmental educators and their students have recently formed a non-governmental organization called ECOSYSTEM. The organization unites teachers, administrators, ecological and biological centers, in-school environmental clubs and public, non-governmental youth environmental groups.

The main activities of the group include collection and dissemination of information about environmental education, training of educators, international contests for young people involved in research in biology, geography and ecology, and trips/expeditions to study Russia's natural flora and fauna.

ECOSYSTEM is interested in liasing with naturalist groups outside of Russia and guiding trips for foreign educators, naturalists and birdwatchers in Russia. Fourteen trips are presently available at prices very reasonable compared with those offered by travel agencies ($30-45 U.S./day covers in-country transport, food and accommodation and all fees). Local tours last 9-12 days, transcontinental tours 15-20 days. ECOSYSTEM's preference is to work with groups of 5-15 people.

Anybody interested in ECOSYSTEM and its work can contact Dr. A. Bogolyubov, ECOSYSTEM, Nedelina 24-28, Moscow, 121354 Russia. Fax 7-095-354-35-48.

Grain Terminals and Falcons

Jim Lange

An Alberta government grain terminal is situated just west of 127th Street and north of the Yellowhead Trail in the north end of Edmonton. It is a large, cement, silo-type structure approximately three stories high with a service staircase along the west side and a metal vertical emergency ladder. My home faces the north side of the building and is in a location that permits good visibility of both the grain terminal and the surrounding area.

Grain spillage from the rail car loading creates a food source for Rock Doves, which nest and roost in and on the building. The pigeons, in turn, provide an attraction for birds of prey. Merlins, which nest nearby, are regular visitors in the summer and fall. Swainson's Hawk are also periodically seen during the summer months.

During the fall of 1994 (September and October), I had three sightings of Peregrine Falcons at this site. In the first instance, the bird landed and spent part of the night roosting on the top of the stairwell. The second bird, approximately 10 days later, flew in and perched on the terminal's northeast corner for 20 minutes before flying off. Later in October another Peregrine circled the building several times, but did not stay.

On December 15, 1994 a grey phase Gyrfalcon appeared from the west at 10:35 a.m., soaring and flap flying around the building, and scaring the pigeons. The bird flew off to the east along the railway line. Approximately 10 minutes later it came back heading west. The next day the bird was again sighted flying east over the Calder railyard at 118th Street and the Yellowhead Trail. This makes the third winter in a row in which a Gyrfalcon has shown up in the Calder railyard area in December.

Then on January 15, 1995, at approximately 2 p.m., the pigeons on the grain terminal launched into flight. They went into a tight ball formation indicating the presence of a bird of prey. When I investigated I saw a large falcon at approximately 30 m above ground level, soaring and flap flying in a clockwise climbing circle around the building. The bird then flew straight west along the CNR rail line. (Of interest here is the fact that the large raptors always seem to circle in a clockwise direction. Both Gyrfalcon and Peregrine behave in this manner.)

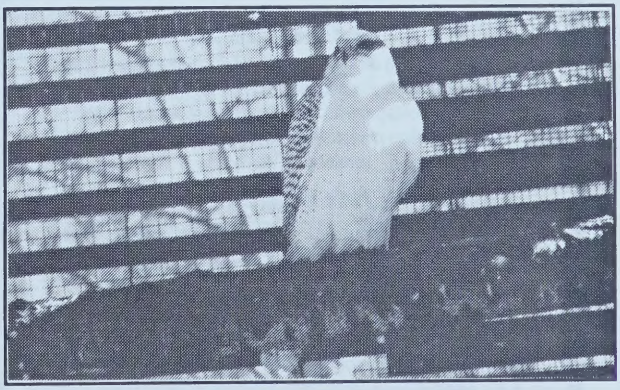
At approximately 2:30 p.m. the bird was again seen approaching from the west in a flat glide about 50 m above the ground. It circled the building, but then was lost from view, so I assumed it flew to the east. After waiting and watching for a half hour, hoping the bird would return, I got up to check the building. I found the pigeons behaving normally. However, an object in the center of the north wall of the building caught my attention. Upon investigating I found my falcon perched 25 m up on the top of the metal fire escape ladder attached to the building's outside wall.

I quickly set up a tripod and spotting scope in the living room and focused on the bird. Fred Whiley, another competent birder living nearby, was called and asked to come and verify (or share the disbelief) of what was being observed. When I phoned Fred and asked how long it would take for him to get to my home his reply was around 15 minutes. The time was quickly shortened to 10 minutes when I told him I was watching a Gyrfalcon from the living room.

When Fred arrived, we took turns looking through the scope and made detailed notes on every aspect of the plumage. We pored through every reference book and field guide that had anything on Gyrfalcons. (These birds are holarctic breeders, and in Alberta they are usually seen in October or November, most often in the Calgary area, where there is open water and Mallards to prey upon.) The bird roosted on the ladder all evening and was still there the next morning when I left for work. Which direction the bird went after that I do not know.

On the evening of January 19, 1995, I was required to work a double shift and was off work at midnight. After an exhausting day and the walk home I was more than ready for some sleep. Well, wouldn't you know it: even after a 16 hour shift, I could not resist a peek at the grain terminal. Much to my dismay, there perched the Gyrfalcon on top of the ladder. The time was 12:30 a.m. Needless to say, I did not stay up to observe the bird, and it was gone by 5:45 that morning.

Neither myself nor other birders with whom I have discussed these sightings have any real answers as to why the falcons are fond of the grain terminal. I have seen them harrass but not kill the pigeons there. Petra Rowell, with Alberta Fish and Wildlife's Peregrine Program, feels the terminal may become a fourth nest site for Peregrines in Edmonton. Only time will tell.



White phase Gyrfalcon Photo: J. Lange

Jim Lange is a well-known Edmonton naturalist and birder.

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Announcements

Unique Writers Conference to Mark Waterton Centennial

Waterton Lakes National Park, Alberta, Canada, is celebrating its 100th Anniversary in 1995, and a number of special events will mark the occasion. Starting September 15, 1995 the park will be the scene of a three-day Nature Writers Conference, hosted by *Waterton Glacier Views* (the park's weekly newspaper), in conjunction with award-winning nature writer and Waterton's ecosystems specialist, Kevin Van Tighem.

The conference promises some unique field experience/story opportunities as part of the package. During the three-day event, park wardens and other expert resource people will lead workshop-field trips, both in the park itself and in surrounding areas. These will likely include field trips to watch the impressive spawning activity of the endangered bull trout on the North Fork of the Belly River; rutting elk and a discussion of poaching problems; staging Trumpeter Swans; and an exciting adventure into the back-country on the trail of the Waterton wolf pack.

In addition to the field trips, the conference will offer seminars on marketing, use of the Internet, nature photography and more. Although keynote speakers haven't been confirmed at this early stage, we can promise at least a couple of magazine editors and noted nature and outdoor writers. For information contact Barbara Grinder, Editor; *Waterton Glacier Views*, Box 127, Hill Spring, Alberta T0K 1E0, phone (403) 626-3658.

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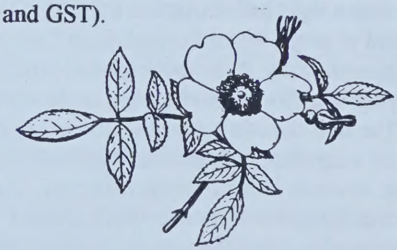
Publication on Rare Vascular Plants

The Canadian Museum of Nature is pleased to announce the publication of *Rare Vascular Plants in the Northwest Territories* by Cheryl L. McJannet, George W. Argus and William J. Cody. This publication is the latest to emerge from the Canadian Rare Plants Project, which is supported by the Research Division of the Canadian Museum of Nature.

The publication treats 106 rare vascular plant taxa in the Northwest Territories and is divided into three sections. The first section includes an introduction, a definition of terms, methods, criteria for assessing rare status, an interpretation of distributional patterns, a summary on the protection of plants in the Northwest Territories and a listing of future research requirements. The second section is a list of the rare plants and for each taxon the authors include documentation supporting each plant's rarity, phytogeography, rare status in other provinces and regions of Canada, the Nature Conservancy Global and Canada Ranks, habitat, relevant comments and a map illustrating its distribution in the Northwest Territories. The third and final section includes three appendices: a listing by family (Appendix I), a phytogeographical list (Appendix II) and a list of excluded taxa with reasons for their exclusion (Appendix III).

The rare taxa included in this publication represent a unique part of Canadian biodiversity and their recognition is an important step toward characterization and representation of northern ecosystems.

This publication is available in English from Direct Mail, Canadian Museum of Nature, P.O. Box 3443, Station "D", Ottawa, Ontario K1P 6P4. Call toll free at 1-800-263-4433. Price in Canada: $16.00 (including postage, handling and GST).



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Interpretive Eco Centre Planned for Slave Lake

The community of Slave Lake, Alberta is planning to build an interpretative education facility in Lesser Slave Lake Provincial Park. The 1352 square meter facility, to be called the Lesser Slave Lake Eco Centre, is expected to become a major tourist attraction. Using the theme, *Striking The Balance: Man and Nature in the Lesser Slave Lake Area Over Time*, the center will feature displays and interpretive and educational programming on-site and throughout the region. Visitors will be able to experience the lake, forests and sand dunes as well as learn about their protection, management and use. The project is the brainchild of 10 clubs and organizations from the community and region, involving a unique partnership between non-government and government agencies.

For more information contact June Markwart, Lesser Slave Eco Centre, Slave Lake, Alberta (403) 849-5723, Fax: (403) 849-2633.

The Doug Tarry Bird Study Awards for Young People

The Doug Tarry Bird Study Awards promote the development of ornithological talents and interests in Canadian teenagers. Recipients of the awards attend a week-long workshop/natural history camp at Long Point Bird Observatory (LPBO), located on the north shore of Lake Erie, Ontario. This year the workshop is being held July 2-9, 1995.

Space is limited to six participants, ranging in age from 13-18 years old. The Award covers all direct costs of the workshop (accommodation, meals, travel while at Long Point and professional instruction), but recipients are responsible for their transportation to Long Point. Prospective participants are invited to request an application form from: Rosie Kirton, Long Point Bird Observatory, Box 160, Port Rowan, Ontario NOE 1M0 (fax 519-586-3532). Applications are due May 1, 1995.

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SUBMISSION GUIDELINES

GENERAL GUIDELINES

The Alberta Naturalist is published April 1, July 1, October 1, and January 1. The deadline for contributions is six weeks prior to the publication date.

1. Manuscripts must be typed, double spaced on 8 1/2" by 11" paper, or submitted on diskette (IBM compatible). Mail: FAN, Box 1472, Edm., AB T5J 2N5. Express: 11759 - Groat Road, Edm., AB T6M 3K6. Fax: 453-8553. Phone: 453-8629.

2. One or more photos, illustrations, or slides should accompany your article. Also include captions and credits.

3. High quality maps and short tables are welcome.

4. Footnotes and a bibliography should include author, title, place of publication, publisher, date and page reference or pages.

5. Manuscripts should contain a minimum of scientific jargon; they should be understandable by the general public.

6. Site locations should be described in reference to communities on the Alberta Road Map.

7. Articles not previously published are preferred.

8. The editor reserves the right to edit for length, grammar, accepted nomenclature and readability.

9. Manuscripts may be sent out for peer review.

10. All articles must be accompanied by the author's address.

SPECIFIC GUIDELINES

1. Letters to the Editor:
   - up to 500 words

*2. Guest Editorial/Issues Column:
   - 1000 to 2000 words
   - current issue, preferably in Alberta
   - query editor in advance

3. Comment Column:
   - up to 500 words
   - should be topical; may include personal observations or reactions to an article in the *AN*, a current issue, government or private action, FAN policy, etc.

*4. Feature Articles:
   - 1000 to 2000 words
   - could deal with personal observations of natural phenomena or concerns of membership; be a report of a trip; profile of a facility, park, natural area or activity, etc.

*5 Research/Report Articles:
   - up to 2000 words
   - should include where research was undertaken, purpose, sponsor, research methodology and summary of findings with emphasis on the latter

6. Technical Articles:
   - 500 to 1000 words
   - "how to" articles of interest to naturalists
   - could include identification, photography, minimum impact "naturalizing", etc.

7. General News:
   - 100 to 300 words
   - interesting personal observations, unusual sightings, upcoming events not sponsored by member clubs, etc.

*8. Profile Articles:
   - 1000 to 2000 words
   - profiles of notable Alberta naturalists

9. Club News:
   - 500 to 750 words

10. Book Reviews:
   - 500 to 750 words
   - must include publication data, price, short synopsis of the book, strengths and weaknesses

11. Conference Review:
   - 500 to 750 words
   - must be published within six months of the event

*Exceptions to these guidelines may be made in consultation with the editor.

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RESULTS OF THE 1994 MAY SPECIES COUNT PLANTS IN FLOWER

A Possible Addition to the Vascular Flora of Alberta

Cut-leaved Anemone *(Anemone multifida)* Photo: J.D. Johnson

RESULTS OF THE 1994 MAY SPECIES COUNT PLANTS IN FLOWER

J. Derek Johnson

Following are the results of the botanical portion of the 1994 May Species Count, held May 28-29. The areas from which reports were received have been listed in approximate latitudinal order from south to north. No report was received from Red Deer and the loss of the organizer in High Level meant no report from that location either this year. First time counts came from William's Coulee, west of Nanton, and Crimson Lake Provincial Park, west of Rocky Mountain House. Scientific nomenclature in this report follows Moss (1983); most common names have been taken from Looman and Best (1979).

After the record-setting efforts of last year, numbers were down in almost all categories this year. Part of the problem may have been the compiler's inability to follow-up with contributors because of other commitments. Rest assured, your efforts are all appreciated and I haven't forgotten you. I hope I can catch up with my thank yous and reminders before this year's count takes place. Forty-one reports, representing 18 areas, were received, down from 49 last year. The number of participants was 188, down from last year's record of 228, but still the second highest total in the count's history. The number of species reported in flower was 464, again the second highest total in count history after the 485 reported last year. Record highs for the number of species seen in flower were set or tied at Lethbridge, Medicine Hat, Calgary, Yamnuska/Bow Corridor, Banff/Canmore, Coyote Lake and Fort McMurray. All other areas, except Grande Prairie, were above average. The Edmonton area had the distinction of reporting the highest number of species in flower this year with 162; Whiskey Gap came second with 151; and the Yamnuska/Bow Corridor region was third with 142.

Weather on the count weekend was generally good across the entire province, ideal for spending a day out counting flowers. Spring conditions were comparable to or slightly ahead of 1993. Central and northern areas were about a week to 10 days ahead of average; southern areas were about two weeks ahead of average.

Smilacina stellata (star-flowered Solomon's-seal), *Amelanchier alnifolia* (Saskatoon), *Fragaria virginiana* (smooth wild strawberry) and *Viola adunca* (early blue violet) all shared the distinction of being the most commonly reported species this year, each being absent from only one of the 18 summarized count areas.

Several species were reported more frequently on the 1994 count than ever before. *Menyanthes trifoliata* (buck-bean) and *Agoseris glauca* (false dandelion) were each reported from five areas. Two reports of *Arceuthobium americanum* (American dwarf mistletoe) in flower were received from the Bow Corridor and Fort McMurray. The only other times that this species has been seen were in 1981 at Grande Prairie and 1982 at Redwater. *Potentilla fruticosa* (shrubby cinquefoil) was reported from 11 areas, only the second time it has been seen so often. *Campanula rotundifolia* (harebell) equalled last year's total, being reported from two areas.

Surprises as far as flowering records go included *Galium boreale* (northern bedstraw) and *Viola nuttallii* (Nuttall's yellow violet), which were seen in flower in two and three areas respectively, definitely fewer than I would have expected considering the nature of the season. *Ranunculus cardiophyllus* (heart-leaved buttercup) and *R. rhomboideus* (prairie buttercup) also showed up on fewer counts than usual. There was only a single report of *Lupinus sericeus* (silky perennial lupine) in flower, compared to five for the usually less commonly reported *L. argenteus* (silvery perennial lupine). If the report of *Epilobium angustifolium* (fireweed) is correct, it represents only the fourth time in 19 years that the species has been seen in flower in Alberta before the end of May.

Twenty-six new species were added to the all-time May Count list this year. Only six of the new records were supported by specimens; many of the others ranged from highly suspect to downright unbelievable. I am only going to list the most plausible records and/or those supported by specimens. New species included *Cerastium beeringianum* (mountain chickweed) from Waterton, Yamnuska and Wind Ridge; *Oenothera flava* (low yellow evening primrose) from Whiskey Gap; *Oenothera serrulata* (shrubby evening primrose) from Lethbridge; *Echinocystis lobata* (wild cucumber) and *Erigeron annuus* (daisy fleabane) from Medicine Hat; *Cirsium vulgare* (bull thistle) from Medicine Hat and the Bow Corridor; *Carex buxbaumii* (brown sedge) from Banff National Park; *Lysimachia ciliata* (fringed loosestrife) from Stettler; *Carex leptalea* (bristle-stalked sedge) and *Eriophorum chamissonis* (russett cotton grass) from Coyote Lake; *Carex backii* (Back's sedge) from Edmonton; *Trientalis europaea* (arctic starflower) from south of Entwistle; and *Tiarella trifoliata* (foamflower) from north of Edson. The folks in High Level probably had both species of starflower (*Trientalis borealis* and *T. europaea*) in flower on the 1993 count, but they did not recognize them as different at the time. The report of *Psoralea argophylla* (silver-leaf psoralea) from Medicine Hat is the first for the May Count, although it has apparently been found in flower in Alberta before the end of May previously (Hrapko 1988).

Prizes for the most noteworthy new species go to Whiskey Gap for *Oenothera flava* (low yellow evening primrose) and Lethbridge for *Oenothera serrulata* (shrubby evening primrose). Both of these species are rare in the province (Packer and Bradley 1984). Honourable mention, if only because the plant is an introduced weed, goes to Medicine Hat for *Echinocystis lobata* (wild cucumber).

Twenty-four species either considered to be rare in

Alberta by Packer and Bradley (1984) or rare in Canada by Argus and Pryer (1990) were found on the 1994 count. This is down from the 30 species reported last year. The only rare species to be reported for the first time were the above mentioned evening primroses.

The distinction of having the longest time period since last being reported in flower falls to *Anemone occidentalis* (chalice flower), reported from Waterton and the Bow Corridor, and *Potentilla tridentata* (three-toothed cinquefoil), reported from Fort McMurray. The last time these two species were reported in flower was on the very first year of the count in 1976, the former from the Sheep River area, southwest of Calgary, and the latter from Fort McMurray. Honourable mentions go to *Scirpus acutus* (viscid great bulrush), from the Clifford E. Lee Nature Sanctuary, west of Edmonton, and *Anemone cylindrica* (long-fruited anemone), from William's Coulee, west of Nanton. The last times these two species were reported in flower were in 1978 and 1981, respectively, both records coming from Buffalo Lake.

The last two years have proven to be very challenging in relation to sorting through weird and wacky flowering records. I learn new things about plants from the count every year, and this is why I like doing it, but there are always several records that stretch the bounds of credibility, either in terms of the species identification or whether or not that species could actually be in flower so early (or late) in the year. Most of these records have been marked with a question mark (?) in the accompanying table.

Following is a list of observers, area totals (1993 in brackets), and other pertinent remarks for each area.

1. Waterton Lakes National Park: Three counts, including six participants, were conducted in the park on June 4th and 5th, the weekend after the official count. Absence of park interpreter Janice Smith meant fewer species in the Waterton list this year, but the group still managed a respectable total of 97 (173) species. Gordon and Hazel Ross submitted a list from the lower Red Rock Canyon road that included 62 (63) species. Betty Haig, Lois McKillop and Doris Rhodes travelled the Akamina Highway encountering 49 species along the way. Teresa Dolman added 15 species to the list from her visit to the park. Because the count was conducted a week after the official count, new plant records from this count have been included only as they relate to other count areas.

2. Whiskey Gap: An impressive 151 (202) species were reported from this area by Barbara and Lynn Sommerfeldt. This area continues to provide some of the more interesting records for the count. Barbara related that it was a good flowering year for many of the legumes, with *Astragalus crassicarpus* (ground plum) and *Oxytropis lagopus* (hare-footed locoweed) doing particularly well.

3. Lethbridge and area: Five counts, including 10 participants, were submitted from this area. Six Mile Coulee was covered by Bob Hall. He reported 32 (49) species in flower. The old Fort Whoop-up site south of Lethbridge revealed 36 (38) species in flower to Gordon and Hazel Ross. This is where the rare *Oenothera serrulata* (shrubby evening primrose) was found. Lloyd Bennett put in an exceptional effort on his fourth count in the Taber area, finding 92 (69) species in flower, his best total ever. Magrath Park was visited by Connie Goodall, Betty Haig, Lois McKillop, Sheila Petherbridge and Doris Rhodes who found 10 species in flower. Bill Sharp covered the Fort MacLeod area recording 17 species in flower. The total for the Lethbridge area was 112 (98), 14 species more than last year's record.

4. Cypress Hills Provincial Park: Margaret and Anton Walker, and Doug and Sue Macdonald reported 87 (110) species in flower, down considerably from last year's total.

5. Medicine Hat: Dennis Baresco compiled a list including 23 participants and 67 (68) species in flower. Other participants on the count were Ingrid Belinsky, Kelly Bogle, Barb and Ron Chisholm, Dawn Dickinson, Delphine Fortin, Bob Frew, Bill Haynes, Hope Johnson, Lex Karne, Mark and Phyllis MacDonald, Jim and Lorine Marshall, Garry Newton, Mark Oxamitny, Dorothy Robertson, Les Scholly, Gretton and Veronica Swan, and Ben and Michael Velner.

6. Claresholm: A count in the foothills west of Claresholm by Ruth and Jason Attwell came up with a total of 27 species in flower.

7. Nanton: A trip to William's Coulee, just west of Nanton, by Eileen Dann, James McCormick, Jim Posey (compiler) and Joan Williams resulted in a list of 77 species in flower.

8. Calgary and area: Seven reports, covering seven diverse areas, came from Calgary this year. Three were from within the city and four were from outside. In the city, Don Stiles listed 40 (42) species from the Bow River below Queensland. Ann Brebner and Rebecca and Martin Stares came up with a count of 66 (57) species from the University Reserve. Olga Droppo and participants in a plant identification course submitted a list of 49 species in flower from Nose Hill Park. Outside the city, Don Stiles recorded 18 species from his Red Deer Lake bluebird trail and 13 species along the Horse Creek Road from Township Road 274 to Water Valley. Gordon Kerr listed 33 species from Wyndham-Carseland Provincial Park. Jane Lancaster included 41 species from the Bragg Creek Natural Area, west of the city. The total for the Calgary area was 125 (91) species, six more than the previous record set in 1992.

9. Yamnuska/Bow Corridor/Kananaskis River: The annual count in the Yamnuska area by the Bow Valley Naturalists resulted in a list of 107 (117) species in flower. Participants on this count included Ruth Buskevicius, Patricia Grayling, Dave Hunter, Deb Hornsby, Karen Ivanochko, Diane (compiler) and

Mike McIvor, Bob and Mary Smith, and Eva Zidek. A summary report compiled by Janet Rodgers, encompassing the Bow Corridor and Kananaskis River area, included 94 (105) species. Other participants on this count included Kevin Barker, Beverly Bendell, Sue Blinn, Janet and Pat Brygger, Bob and Ruth Camenzind, Laura Carr, Dene (co-compiler) and Jean Cooper, Jeff Cupchik, Linda Davis, Pat Donald, Mary Dumka, Bert and Marilyn Dyck, Margo and Cliff Hansen, Dale and Lisa Holmes, Cindy Hutchinson, Steve Jarrand, Kathleen Kasparianus, Wayne Kenefick, Megan Kopp, D. Laslo, Bill and Angie Loughran, Donna MacKay, Dick and Mike Mann, Bente and Roy Preshaw, Rose Reid, Ailene and Bob Reynolds, Paula Rodriguez, Diane, Wayne, Chelcy and Mandy Scott, Hanne Seidel, Paul and Emily Smith, Maurice, Jan, Sylvie and Elise Tissandier, Susanah Windrum and Eva Zidek. The total for this region was 142 (167) species.

10. Banff/Canmore/Wind Ridge: Twelve participants listed 131 (129) species in flower from these three areas, two better than the 1987 and 1993 records. Diane (compiler) and Mike McIvor included 115 species from Banff National Park. Bruce Bembridge, Ruth Buskevicius, Adam, Chris and Bunny Farley, Kevin Gibney, Bob and Mary Smith, and Jan and Sylvie Tissandier reported 36 species from the Canmore area and 43 species from Wind Ridge. Interesting species found in the Sunshine area, and ones infrequently reported on the May Count, included *Astragalus robbinsii* (Robbin's milk-vetch), *Carex limosa* (mud sedge) and *Eleocharis quinqueflora* (few-flowered spike rush).

11. Rocky Mountain House: Eloise MacDonald encountered 32 species in flower on a visit to Crimson Lake Provincial Park, west of the town.

12. Buffalo Lake/Stettler: The report from the Buffalo Lake Naturalists, covering the area from Stettler north to Buffalo Lake and south to McKenzie Crossing on the Red Deer River, included 63 (53) species in flower. The local turnout for the count was excellent. Participants included Hugh and Nora Charles, Bertha Clark, Christene Comstock, Trudie Grafe, Gary and Laverne Grant, Elmer Gross, Gladys and Wilf Hewlett, Martha and Ron Kruger, Lloyd Lohr (compiler), Mike, Nathan and Phillip Moad, Hazel Peterson, Irma Simons, Carol Simpson (co-compiler), Davis and Les Simpson, Barbara Smith, Barb and Garnet Stark, and Phyllis Wood.

13. Coyote Lake: The Plant Study Group of the Edmonton Natural History Club targetted this nature sanctuary 67 km west of Leduc for their official May Count this year. Ten participants helped up the species total to 87 (40), by far the best result in the five counts that have been done in the area. Diana Baragar, Patsy Cotterill, Rae Ehrman, Rajesh Gabrani, Doris and Eric Hopkins, Derek Johnson (compiler), Laurie Lywak, Brian Parker and Claire Radke were the participants.

14. Edmonton and area: Participation and area coverage was better than average this year. Eight reports, including 22 participants, were received this year, compared to last year's 8 reports and 17 participants. The number of species seen in flower was up from last year's total to 162 (152), the second highest in the count's 18-year history. Four reports came from within the city and four from outside.

Within the city, the annual pilgrimage along Whitemud Creek from 23rd to 45th Avenue picked up 55 (59) species in flower. Elisabeth Beaubien and Derek Johnson were the observers. Patsy Cotterill was again much travelled, visiting many areas within and beyond the city. Her visit to Little Mountain Park in north Edmonton came up with 49 (38) species in flower and a trek through Patricia Ravine revealed 35 species in flower. Incidental observations throughout the city by Derek Johnson on May 30 added 27 species to the city total.

Outside the city, a most interesting remnant native prairie, east of Nisku, was visited on May 25. Diana Baragar, Patsy Cotterill (co-compiler), Graham Griffiths, Derek Johnson (compiler), Marg Lewis, Laurie Lywak, Brian Parker, Birg Steinbach, Pat Wishart and several other nameless souls put together a list of 33 species in flower, on what is hoped to be the first of many counts in this area. The annual count in the Wagner Natural Area, west of Edmonton, came up with 68 (80) species in flower. Participants included Diana Baragar, Pat Clayton, Patsy Cotterill (compiler), Rae Ehrman, Claire Radke, Frank Rusconi, Jennifer Thompson, and Sandra Tober. The Clifford E. Lee Nature Sanctuary near Devon was included in Patsy Cotterill's travels where she located 48 (47) species. Elisabeth Beaubien, Elisabeth Campbell, Judy Fairweather, Sarah Goldie, Linda Kershaw (compiler), Inger Paulsen and Vicki Russel covered territory south of Highway 14 between Range Roads 204 and 210 reporting 55 (45) species in flower.

15. Entwistle: The sixteenth annual count in the area surrounding Hoople Lake, 8 km SSE of Entwistle, came up with a total of 71 (74) species in flower. Derek Johnson and Steve Zoltai were the observers. There were two interesting records on the count in this area. Last year it was reported that *Trientalis borealis* (northern starflower) was found for only the second time on this count, in exactly the same spot where it had been seen in 1981. I was a little suspicious of my identification so I went back in July to see if I could find the plants again. Since they were no longer flowering I was unable to do so. This year, however, the plants were again found on the May Count and I took the opportunity to collect a few specimens. On examination the plants turned out to be *T. europaea* (arctic starflower), rather than *T. borealis*. This is a particularly exciting record since not only is it the first confirmed record,of this species for the May Count, but it is also an occurrence near the southern limit of the species' distribution in Alberta. The finding of *Viola macloskeyi* (Macloskey's violet), in a wet depression in a hay meadow, is equally noteworthy. It is a new record for the count in this area and it is only the third time that the species has been reported on the May Count. It is a rare species in Alberta (Packer and Bradley 1984).

16. Edson and area: On June 1, in conjunction with a plant identification course run through the Faculty of Extension at the University of Alberta, a tour by Derek Johnson, from the boreal environs of the town of Edson northward to the subalpine forest surrounding Mayberne Fire Tower, revealed 79 species in flower.

17. Grande Prairie area: Only two reports, including three observers, were received from this area this year. The annual survey of their farm northeast of Wembley, by Gavin and Ellen Craig, resulted in their finding 29 (53) species in flower. Margot Hervieux travelled to Saskatoon Mountain, west of the city, where she reported 21 species in flower. The total number of species for the area was a disappointing 42 (75).

18. Fort McMurray: Again this year there was an excellent turnout for this count. Fifteen participants saw a total of 114 (92) species in flower, the most ever on a count in this area. Lori Binder, Pat Connolly, Matthew and Raymond George, Marion Horrocks (compiler), Marjorie Kidd, Fred Korbut, Karen Nicholson, Helen Pacholko, Ken Sanderson, Debbie Skaar, Dale Smith, Maria and Sarah Vyboh, and Herb Walker were the participants.

The 1995 count will be held on the weekend of May 27-28.

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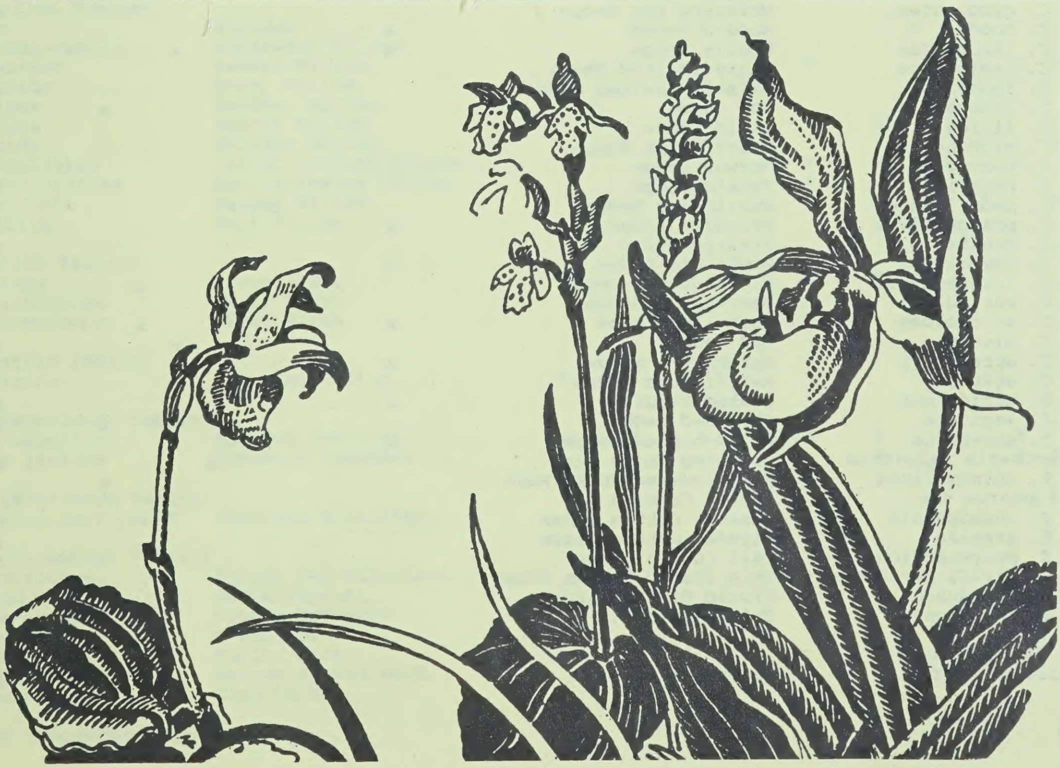

Calypso, Fly-spotted Orchis, Hooded Ladies'-Tresses and Yellow Lady's Slipper

1994 MAY SPECIES COUNT: PLANTS IN FLOWER

FAMILY SCIENTIFIC NAME	COMMON NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
JUNCAGINACEAE (Arrow-grass Family)																			
Triglochin maritima	Seaside Arrow-grass												x		x				x
T. palustris	Marsh Arrow-grass										x								
GRAMINEAE (Grass Family)																			
Alopecurus aequalis	Short-awned Foxtail														x				
A. occidentalis	Alpine Foxtail		x																
A. pratensis	Meadow Foxtail								x						x	x			
Bromus tectorum	Downy Chess			x?															
Elymus junceus	Russian Wild Rye			x															
Festuca scabrella	Northern Rough Fescue								x										
Hierochloe odorata	Sweet Grass		x	x					x	x	x			x	x	x	x		x
Oryzopsis asperifolia	White-grained Mountain Rice Grass														x				x
O. pungens	Northern Rice Grass																x		
Phleum pratense	Timothy			x?															
Poa spp.	Bluegrasses							x											
P. annua	Annual Bluegrass								x						x		x		
P. pratensis	Kentucky Bluegrass			x											x				
CYPERACEAE (Sedge Family)																			
Carex spp.	Sedges			x				x				x							
C. aenea	Silvery-flowered Sedge													x	x				
C. aquatilis	Water Sedge		x								x			x	x	x			x
C. atherodes	Awned Sedge														x				
C. aurea	Golden Sedge														x				
C. backii	Back's Sedge														x				
C. brunnescens	Brownish Sedge													x		x			
C. buxbaumii	Brown Sedge										x								
C. capillaris	Hair-like Sedge										x			x	x	x			
C. chordorrhiza	Prostrate Sedge																x		
C. concinna	Beautiful Sedge																		x
C. curta	Short Sedge													x		x			
C. deweyana	Dewey's Sedge													x	x		x		
C. diandra	Two-stamened Sedge													x	x				
C. disperma	Two-seeded Sedge													x	x	x			
C. douglasii	Douglas Sedge		x																
C. gynocrates	Northern Bog Sedge													x	x		x		
C. hoodii	Hood's Sedge		x																
C. lanuginosa	Woolly Sedge		x						x						x				
C. lasiocarpa	Hairy-fruited Sedge													x	x				
C. leptalea	Bristle-stalked Sedge													x					
C. limosa	Mud Sedge										x				x				
C. livida	Livid Sedge														x				
C. microptera	Thick-spike Sedge													x					
C. norvegica	Norway Sedge															x			
C. peckii	Peck's Sedge														x				
C. pensylvanica	Sun-loving Sedge														x				
C. praegracilis	Graceful Sedge		x												x				
C. prairea	Prairie Sedge													x	x	x			
C. raynoldsii	Raynold's Sedge		x																
C. richardsonii	Richardson's Sedge									x							x		x
C. sartwellii	Sartwell's Sedge														x	x			
C. scirpoidea	Rush-like Sedge		x							x									
C. siccata	Hay Sedge								x					x	x	x	x		x
C. sprengelii	Sprengel's Sedge		x												x				
C. stipata	Awl-fruited Sedge														x				
C. utriculata	Beaked Sedge		x											x	x				
C. vaginata	Sheathed Sedge										x			x	x		x		
C. xerantica	White-scaled Sedge		x																
Eleocharis palustris	Creeping Spike Rush							x						x	x				
E. quinqueflora	Few-flowered Spike Rush										x				x				
Eriophorum spp.	Cotton Grasses																	x	
E. chamissonis	Russett Cotton Grass													x					
E. gracile	Slender Cotton Grass													x					
E. polystachion	Tall Cotton Grass													x	x				x
E. viridi-carinatum	Thin-leaved Cotton Grass														x				
Scirpus acutus	Viscid Great Bulrush														x				
S. cespitosus	Tufted Bulrush										x				x				
ARACEAE (Arum Family)																			
Calla palustris	Water Calla													x					

1994 MAY SPECIES COUNT: PLANTS IN FLOWER

FAMILY SCIENTIFIC NAME	COMMON NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
JUNCACEAE (Rush Family)																			
Juncus balticus	Baltic Rush												x						
LILIACEAE (Lily Family)																			
Allium textile	Prairie Onion	x	x	x	x	x		x	x	x			x						
Asparagus officinalis	Asparagus														x				
Calochortus apiculatus	Mariposa Lily	x																	
Disporum trachycarpum	Fairybells	x	x		x			x	x	x	x			x	x	x		x	x
Erythronium grandiflorum	Glacier Lily	x			x						x								
Fritillaria pudica	Yellowbell		x																
Maianthemum canadense	Wild Lily-of-the-Valley											x	x	x	x			x	x
Smilacina racemosa	False Solomon's-seal	x	x	x	x			x		x				x			x	x	
S. stellata	Star-flowered Solomon's-seal	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x
S. trifolia	Three-leaved Solomon's-seal											x		x	x	x	x		x
Streptopus amplexifolius	Clasping-leaved Twistedstalk	x																	
Tofieldia glutinosa	Sticky Asphodel									x			x						
Xerophyllum tenax	Bear-grass	x																	
Zigadenus elegans	Smooth Camas									x	x								
Z. venenosus	Death Camas	x	x	x		x													
IRIDACEAE (Iris Family)																			
Sisyrinchium montanum	Common Blue-eyed Grass	x	x	x	x			x	x	x	x		x	x	x	x		x	x
S. septentrionale	Blue-eyed Grass										x								
ORCHIDACEAE (Orchid Family)																			
Calypso bulbosa	Venus-slipper				x		x		x	x	x						x		x
Corallorhiza striata	Striped Coralroot	x			x					x								x	
C. trifida	Pale Coralroot	x	x		x			x	x	x	x		x	x	x	x	x		x
Cypripedium acaule	Stemless Lady's-slipper																		x
C. calceolus	Yellow Lady's-slipper								x	x			x		x				
C. montanum	Mountain Lady's-slipper	x																	
Habenaria hyperborea	Green-flowered Bog Orchid										x								
H. obtusata	Small Northern Bog Orchid									x	x						x		x
H. viridis	Long-bracted Orchid		x		x				x	x					x				
Listera cordata	Heart-leaved Twayblade													x	x				
Orchis rotundifolia	Round-leaved Orchid									x	x								
SALICACEAE (Willow Family)																			
Salix spp.	Willows			x		x						x	x						x
S. athabascensis	Athabasca Willow																x		
S. bebbiana	Beaked Willow		x						x					x	x	x	x		
S. candida	Hoary Willow														x				
S. exigua	Sandbar Willow		x												x				
S. glauca	Smooth Willow										x								
S. lucida	Shining Willow													x	x	x			
S. maccalliana	Velvet-fruited Willow								x		x				x				
S. myrtillifolia	Myrtle-leaved Willow								x	x									
S. pyrifolia	Balsam Willow													x		x	x		
S. vestita	Rock Willow									x									
BETULACEAE (Birch Family)																			
Alnus crispa	Green Alder								x	x	x	x					x	x	x
Betula glandulosa	Dwarf Birch								x	x									x
B. occidentalis	River Birch								x										
URTICACEAE (Nettle Family)																			
Urtica dioica	Stinging Nettle	x							x										
SANTALACEAE (Sandalwood Family)																			
Comandra umbellata	Bastard Toadflax	x	x	x	x	x		x	x	x	x		x		x				x
Geocaulon lividum	Northern Comandra										x				x	x	x		x
LORANTHACEAE (Mistletoe Family)																			
Arceuthobium americanum	American Mistletoe									x									x
POLYGONACEAE (Buckwheat Family)																			
Eriogonum flavum	Yellow Umbrellaplant		x	x		x		x	x										
E. umbellatum	Umbrellaplant	x																	
Polygonum arenastrum	Common Knotweed			x															
Rumex acetosa	Green Sorrel		x																
R. crispus	Curled Dock			x?															
R. triangulivalvis	Narrow-leaved Dock				x?														
R. venosus	Sand Dock			x	x														
CHENOPODIACEAE (Goosefoot Family)																			

1994 MAY SPECIES COUNT: PLANTS IN FLOWER

FAMILY SCIENTIFIC NAME	COMMON NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Chenopodium album	Lamb's-quarters		x	x															
C. salinum	Oak-leaved Goosefoot														x				
Monolepis nuttalliana	Spear-leaved Goosefoot								x						x				
PORTULACACEAE (Purslane Family)																			
Claytonia lanceolata	Western Spring Beauty				x														
CARYOPHYLLACEAE (Pink Family)																			
Arenaria capillaris	Linear-leaved Sandwort									x									
A. longipedunculata	Sandwort										x								
Cerastium arvense	Field Chickweed		x	x	x	x	x	x	x	x	x		x		x			x	
C. beeringianum	Alpine Chickweed	x								x	x								
C. nutans	Long-stalked Chickweed													x	x	x			
C. vulgatum	Mouse-eared Chickweed			x		x							x	x			x		x
Minuartia rubella	Red-seeded Sandwort		x							x	x								
Moehringia lateriflora	Blunt-leaved Sandwort		x					x	x	x	x			x	x	x	x	x	x
Paronychia sessiliflora	Low Whitlowwort					x							x?						
Silene cucubalus	Bladder Campion					x													
Stellaria calycantha	Northern Stitchwort																x		
S. crassifolia	Fleshy Chickweed		x												x				
S. longifolia	Long-leaved Stitchwort														x	x	x		
S. longipes	Long-stalked Stitchwort		x						x	x	x			x	x	x	x	x	x
S. media	Common Chickweed	x	x												x				x
RANUNCULACEAE (Crowfoot Family)																			
Actaea rubra	Red Baneberry	x	x		x			x	x	x	x		x	x	x	x	x	x	x
Anemone canadensis	Canada Anemone		x						x				x	x	x				x
A. cylindrica	Long-fruited Anemone							x											
A. multifida	Cut-leaved Anemone	x	x	x	x	x	x	x	x	x	x						x		x
A. occidentalis	Chaliceflower	x								x									
A. parviflora	Small Wood Anemone									x	x								
A. patens	Crocus Anemone		x		x		x		x	x	x								x
Aquilegia brevistyla	Small-flowered Columbine								x	x	x			x	x				x
A. flavescens	Yellow Columbine	x								x	x								
Caltha palustris	Marsh Marigold											x		x	x	x	x		x
Clematis occidentalis	Purple Virgin's-bower	x			x		x	x	x	x	x			x	x			x	
Coptis trifolia	Goldthread																x		
Delphinium bicolor	Low Larkspur	x	x		x		x	x											
Ranunculus abortivus	Smooth-leaved Buttercup			x	x			x						x		x	x		x
R. acris	Tall Buttercup	x	x		x					x	x		x			x	x		
R. cardiophyllus	Heart-leaved Buttercup		x						x						x				
R. circinatus	White Watercrowfoot			x															x
R. cymbalaria	Seaside Buttercup		x	x									x				x		
R. eschscholtzii	Mountain Buttercup									x?									
R. glaberrimus	Early Buttercup									x									
R. gmelinii	Small Yellow Watercrowfoot													x					
R. inamoenus	Graceful Buttercup								x										
R. macounii	Macoun's Buttercup		x																
R. rhomboideus	Prairie Buttercup			x											x				
R. sceleratus	Celery-leaved Buttercup		x	x											x				x
Thalictrum occidentale	Western Meadow Rue	x								x?									
T. venulosum	Veiny Meadow-rue		x		x		x		x	x	x		x	x	x	x	x	x	x
Trollius albiflorus	Globeflower	x								x									
BERBERIDACEAE (Barberry Family)																			
Berberis repens	Creeping Mahonia	x																	
FUMARIACEAE (Fumitory Family)																			
Corydalis aurea	Golden Corydalis		x						x	x	x		x		x	x			x
C. sempervirens	Pink Corydalis																		x
CRUCIFERAE (Mustard Family)																			
Alyssum alyssoides	Small Alyssum		x						x										
A. desertorum	Yellow Alyssum			x															
Arabis divaricarpa	Purple Rock Cress		x												x				
A. drummondii	Drummond's Rock Cress							x	x		x				x				
A. hirsuta	Hirsute Rock Cress				x					x									x
A. holboellii	Reflexed Rock Cress			x				x	x	x	x								x
A. lyallii	Lyall's Rock Cress									x?									
A. lyrata	Lyre-leaved Rock Cress																		x
A. nuttallii	Nuttall's Rock Cress		x																
Barbarea orthoceras	American Winter Cress				x														
Brassica campestris	Bird-rape			x											x				
B. kaber	Wild Mustard			x											x				
Braya humilis	Braya								x	x									

1994 MAY SPECIES COUNT: PLANTS IN FLOWER

FAMILY SCIENTIFIC NAME	COMMON NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Capsella bursa-pastoris	Shepherd's-purse		x	x	x				x		x			x	x		x	x	x
Cardamine pensylvanica	Bitter Cress													x	x	x			x
Cardaria draba	Heart-podded Hoary Cress			x															
C. pubescens	Globe-podded Hoary Cress		x																
Descurainia pinnata	Short-fruited Tansy Mustard		x	x															
D. sophia	Flixweed	x	x	x					x						x				x
Diplotaxis muralis	Sand Rocket								x		x								
Draba aurea	Golden Draba									x	x								
D. cana	White Draba									x	x								
D. lonchocarpa	Draba									x									
D. nemorosa	Annual Draba		x					x		x	x				x				
D. oligosperma	Few-seeded Draba		x								x								
Erucastrum gallicum	Dog Mustard								x		x								
Erysimum asperum	Western Wallflower					x													
E. inconspicuum	Small-flowered Prairie Rocket	x	x	x				x	x		x								
Hesperis matronalis	Dame's Rocket	x	x			x													
Lepidium densiflorum	Common Peppergrass		x												x				x
Lesquerella alpina	Spatulate Bladderpod		x																
L. arenosa	Sand Bladderpod		x		x	x		x	x										
Nasturtium officinale	Water Cress										x								
Physaria didymocarpa	Twin Bladderpod	x								x	x								
Rorippa palustris	Marsh Yellow Cress														x				
Sisymbrium altissimum	Tumbling Mustard			x					x										
S. loeselii	Tall Hedge Mustard							x											
Thlaspi arvense	Stinkweed		x	x	x	x		x	x	x	x		x		x	x	x	x	x
CRASSULACEAE (Orpine Family)																			
Tolmachevia integrifolia	Rose-root	x																	
SAXIFRAGACEAE (Saxifrage Family)																			
Chrysosplenium iowense	Golden Saxifrage													x		x			x
C. tetrandrum	Green Saxifrage								x										
Heuchera cylindrica	Sticky Alumroot		x																
H. parvifolia	Small-leaved Alumroot	x	x					x?											
Leptarrhena pyrolifolia	Leather-leaved Saxifrage							x?											
Mitella nuda	Bishop's-cap									x	x			x	x	x	x		x
Saxifraga bronchialis	Spotted Saxifrage									x	x								
S. oppositifolia	Purple Saxifrage									x									
Tiarella trifoliata	Foamflower																x		
GROSSULARIACEAE (Gooseberry Family)																			
R. americanum	Wild Black Currant												x		x				x
R. aureum	Golden Currant		x	x	x	x			x										
R. glandulosum	Skunkberry														x	x	x	x	x
R. hirtellum	Northern Gooseberry													x	x	x	x	x	x
R. hudsonianum	Northern Black Currant								x					x	x	x			x
R. inerme	Mountain Gooseberry		x																
R. lacustre	Swamp Gooseberry										x				x	x	x		x
R. oxyacanthoides	Northern Gooseberry		x		x			x	x	x	x	x	x		x	x			
R. triste	Swamp Red Currant		x											x	x	x	x		x
R. viscosissimum	Sticky Currant		x																
ROSACEAE (Rose Family)																			
Amelanchier alnifolia	Saskatoon	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x
Chamaerhodos erecta	Chamaerhodos		x							x									
Crataegus rotundifolia	Round-leaved Hawthorn		x	x	x				x						x				
Dryas drummondii	Yellow Mountain-avens	x								x	x								
D. octopetala	White Mountain-avens	x								x	x								
Fragaria vesca	American Wild Strawberry													x	x				x
F. virginiana	Smooth Wild Strawberry	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x
Geum aleppicum	Yellow Avens		x																
G. rivale	Purple Avens																x		
G. triflorum	Three-flowered Avens	x	x	x	x	x	x	x	x	x	x		x		x			x	
Potentilla anserina	Silverweed		x	x	x	x		x	x	x	x		x		x		x		x
P. concinna	Early Cinquefoil	x	x	x	x				x	x	x								
P. diversifolia	Smooth-leaved Cinquefoil									x									
P. fruticosa	Shrubby Cinquefoil	x	x		x	x	x	x	x	x	x		x						x
P. gracilis	Graceful Cinquefoil		x		x														
P. hippiana	Woolly Cinquefoil		x					x											
P. nivea	Snow Cinquefoil									x									
P. norvegica	Rough Cinquefoil										x								
P. pensylvanica	Prairie Cinquefoil			x															
P. tridentata	Three-toothed Cinquefoil																		x
Prunus pensylvanica	Pin Cherry				x					x	x	x		x	x	x			x

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P. virginiana	Black-fruited Choke Cherry	x	x	x	x	x		x	x	x	x		x	x	x	x			x
Rosa spp.	Roses							x					x						
R. acicularis	Prickly Rose	x								x				x	x	x			x
R. arkansana	Low Prairie Rose	x		x		x													
R. woodsii	Wood's Rose		x	x		x			x					x	x				
Rubus arcticus	Stemless Raspberry								x	x	x			x	x	x	x		x
R. chamaemorus	Cloudberry													x		x			x
R. idaeus	Wild Red Raspberry	x									x			x	x	x			
R. parviflorus	Thimbleberry									x?									
R. pubescens	Dewberry				x					x	x	x		x	x	x	x	x	x
Sorbus scopulina	Western Mountain Ash	x																	
LEGUMINOSAE (Pea Family)																			
Astragalus aboriginum	Indian Milk-vetch				x					x	x								
A. alpinus	Alpine Milk-vetch									x	x								
A. bisulcatus	Two-grooved Milk-vetch		x	x		x													
A. crassicarpus	Ground Plum		x	x				x	x										
A. dasyglottis	Purple Milk-vetch		x		x	x		x	x						x			x	x
A. drummondii	Drummond's Milk-vetch		x	x				x	x										
A. eucosmus	Milk-vetch										x								x
A. flexuosus	Slender Milk-vetch			x				x											
A. gilviflorus	Cushion Milk-vetch		x	x	x														
A. miser	Timber Milk-vetch								x	x	x								
A. missouriensis	Missouri Milk-vetch		x	x		x		x											
A. pectinatus	Narrow-leaved Milk-vetch			x	x	x													
A. robbinsii	Robbin's Milk-vetch										x								
A. spatulatus	Tufted Milk-vetch			x		x													
A. striatus	Ascending Purple Milk-vetch				x	x			x		x								
A. tenellus	Loose-flowered Milk-vetch								x										
A. vexilliflexus	Few-flowered Milk-vetch	x	x				x	x		x									
Caragana arborescens	Common Caragana		x	x		x			x				x		x		x	x	x
Hedysarum alpinum	American Sweet Vetch							x	x										
H. boreale	Northern Sweet Vetch		x	x		x			x	x	x				x			x	x
H. sulphurescens	Yellow Sweet Vetch	x	x							x	x								
Lathyrus ochroleucus	Cream-colored Vetchling	x	x	x	x			x	x	x	x	x	x	x	x	x	x	x	x
L. venosus	Wild Peavine												x						
Lupinus argenteus	Silvery Perennial Lupine	x	x	x	x			x?											
L. lepidus	Alpine Lupine		x			x													
L. pusillus	Annual Lupine					x													
L. sericeus	Silky Perennial Lupine								x										
Medicago lupulina	Black Medick	x	x	x	x				x	x	x				x				x
M. sativa	Alfalfa			x					x				x		x				
Melilotus officinalis	Yellow Sweet Clover			x	x	x									x				
Onobrychis viciifolia	Sainfoin			x															
Oxytropis deflexa	Reflexed Locoweed																x		
O. lagopus	Hare-footed Locoweed		x																
O. monticola	Late Yellow Locoweed	x								x?									
O. sericea	Early Yellow Locoweed	x	x	x	x	x		x	x	x	x		x					x	
O. splendens	Showy Locoweed									x			x?						
O. viscida	Viscid Locoweed		x						x	x	x								
Psoralea argophylla	Silver-leaf Psoralea					x													
P. esculenta	Indian Bread-root			x															
Thermopsis rhombifolia	Golden-bean		x	x	x	x	x	x	x	x	x		x		x				
Trifolium hybridum	Alsike Clover														x		x		x
T. pratense	Red Clover				x												x		
T. repens	White Clover	x		x	x						x	x	x	x	x		x		x
Vicia americana	American Vetch	x	x	x	x	x		x	x		x			x	x	x	x	x	x
GERANIACEAE (Geranium Family)																			
Geranium richardsonii	Wild White Geranium										x			x					
G. viscosissimum	Sticky Purple Geranium	x	x		x			x	x	x									
LINACEAE (Flax Family)																			
Linum lewisii	Lewis' Wild Flax	x	x	x		x	x	x	x	x	x								
L. rigidum	Yellow Flax			x		x													
POLYGALACEAE (Milkwort Family)																			
Polygala paucifolia	Fringed Milkwort																		x
EUPHORBIACEAE (Spurge Family)																			
Euphorbia esula	Leafy Spurge		x	x		x									x				
CELASTRACEAE (Bittersweet Family)																			
Pachistima myrsinites	Mountain Lover	x																	

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ACERACEAE (Maple Family)																			
Acer glabrum	Mountain Maple									x									
RHAMNACEAE (Buckthorn Family)																			
Rhamnus alnifolia	Alder-leaved Buckthorn																		x
MALVACEAE (Mallow Family)																			
Sphaeralcea coccinea	Scarlet Mallow			x		x			x										
VIOLACEAE (Violet Family)																			
Viola adunca	Early Blue Violet	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
V. canadensis	Western Canada Violet	x	x		x		x	x	x	x	x	x	x	x	x	x		x	x
V. macloskeyi	Macloskey's Violet															x			
V. nephrophylla	Bog Violet		x					x	x	x	x		x		x				x
V. nuttallii	Nuttall's Yellow Violet		x		x				x										
V. orbiculata	Round-leaved Wood Violet	x																	
V. palustris	Marsh Violet														x				x
V. renifolia	Kidney-leaved Violet								x	x	x				x		x	x	x
CACTACEAE (Cactus Family)																			
Coryphantha vivipara	Ball Cactus			x		x													
ELAEAGNACEAE (Oleaster Family)																			
Elaeagnus commutata	Wolf Willow	x	x	x	x	x		x	x	x	x		x		x		x		x
Shepherdia canadensis	Canada Buffaloberry								x	x	x								x
ONAGRACEAE (Evening Primrose Family)																			
Epilobium angustifolium	Fireweed									x?									
Gaura coccinea	Scarlet Butterflyweed			x		x		x	x										
Oenothera caespitosa	Butte Primrose		x	x															
O. flava	Low Yellow Evening Primrose		x																
O. serrulata	Shrubby Evening Primrose			x															
HIPPURIDACEAE (Mare's-tail Family)																			
Hippuris vulgaris	Mare's-tail														x				x
ARALIACEAE (Ginseng Family)																			
Aralia nudicaulis	Wild Sarsaparilla											x	x	x	x	x	x		x
UMBELLIFERAE (Carrot Family)																			
Angelica dawsonii	Yellow Angelica	x																	
Carum carvi	Caraway										x						x		
Heracleum lanatum	Cow Parsnip	x	x		x					x						x			
Lomatium dissectum	Mountain Wild Parsnip		x								x								
L. foeniculaceum	Hairy-fruited Parsley		x	x		x							x						
L. macrocarpum	Long-fruited Parsley		x		x														
L. triternatum	Western Wild Parsley	x	x					x			x								
Musineon divaricatum	Leafy Musineon		x	x	x				x										
Osmorhiza chilensis	Blunt-fruited Sweet Cicely				x														
O. depauperata	Spreading Sweet Cicely									x				x	x				
O. occidentalis	Western Sweet Cicely	x																	
Sanicula marilandica	Snakeroot													x					
Zizia aptera	Heart-leaved Alexanders		x	x	x		x	x	x	x	x		x		x	x	x		
CORNACEAE (Dogwood Family)																			
Cornus canadensis	Bunchberry									x		x		x	x				x
C. stolonifera	Red-osier Dogwood	x	x	x		x		x	x	x			x	x	x	x	x		x
PYROLACEAE (Wintergreen Family)																			
Pyrola asarifolia	Common Pink Wintergreen									x?									
ERICACEAE (Heath Family)																			
Andromeda polifolia	Bog Rosemary											x		x	x		x		x
Arctostaphylos rubra	Alpine Bearberry									x									
A. uva-ursi	Common Bearberry	x	x		x		x		x	x	x	x			x		x		x
Chamaedaphne calyculata	Leatherleaf																		x
Kalmia microphylla	Mountain Laurel										x								
K. polifolia	Pale Laurel																		x
Ledum groenlandicum	Common Labrador Tea										x	x		x	x	x	x		x
Oxycoccus microcarpus	Small Bog Cranberry										x					x	x		x
Vaccinium caespitosum	Dwarf Bilberry				x					x							x		
V. membranaceum	Tall Bilberry																x		
V. myrtilloides	Blueberry											x			x	x	x		x
V. vitis-idaea	Bog Cranberry											x		x	x	x	x		x

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PRIMULACEAE (Primrose Family)																			
Androsace chamaejasme	Pygmy Shieldwort	x								x	x								
A. septentrionalis	Pygmyflower	x	x	x	x			x	x	x	x				x			x	x
Dodecatheon spp.	Shootingstars						x												
D. conjugens	Mountain Shootingstar		x		x			x	x	x	x	x							
D. pulchellum	Saline Shootingstar	x	x						x	x	x		x		x				x
Glaux maritima	Sea Milkwort			x									x						
Lysimachia ciliata	Fringed Loosestrife												x						
Primula incana	Mealy Primrose				x								x						x
P. mistassinica	Dwarf Primrose									x	x								
Trientalis borealis	Northern Starflower																		x
T. europaea	Arctic Starflower															x			
MENYANTHACEAE (Buck-bean Family)																			
Menyanthes trifoliata	Buck-bean									x		x		x	x				x
CONVOLVULACEAE (Morning Glory Family)																			
Convolvulus arvensis	Field Bindweed			x?															
POLEMONIACEAE (Phlox Family)																			
Phlox alyssifolia	Blue Phlox		x																
P. hoodii	Moss Phlox	x	x		x	x		x	x										
Polemonium pulcherrimum	Showy Jacob's-ladder	x					x				x								
HYDROPHYLLACEAE (Waterleaf Family)																			
Phacelia hastata	Silver-leaved Scorpionweed	x																	
P. sericea	Silky Scorpionweed	x					x				x								
BORAGINACEAE (Borage Family)																			
Cryptantha macounii	Macoun's Cryptanthe		x	x	x														
C. nubigena	Clustered Cryptanthe					x		x											
Cynoglossum officinale	Hound's-tongue	x	x	x				x											
Hackelia floribunda	Large-flowered Stickseed		x																
H. jessicae	Jessica's Stickseed	x																	
Lappula occidentalis	Western Bluebur			x		x			x		x								
L. squarrosa	Bluebur	x	x	x		x			x						x				
Lithospermum incisum	Narrow-leaved Puccoon		x	x	x	x	x	x	x		x		x						
L. ruderale	Woolly Gromwell	x	x		x			x	x	x	x								
Mertensia paniculata	Tall Lungwort								x	x		x		x	x	x	x	x	x
Myosotis alpestris	Alpine Forget-me-not									x	x								
Onosmodium molle	Western False Gromwell							x											
VERBENACEAE (Vervain Family)																			
Verbena bracteata	Carpet Vervain			x															
LABIATAE (Mint Family)																			
Dracocephalum parviflorum	American Dragonhead																		x
Glecoma hederacea	Ground-ivy														x				x
Lamium amplexicaule	Henbit		x												x				
SOLANACEAE (Nightshade Family)																			
Hyoscyamus niger	Black Henbane								x										
SCROPHULARIACEAE (Figwort Family)																			
Besseya wyomingensis	Kittentails				x														
Castilleja cusickii	Yellow Paintbrush		x																
C. hispida	Hispid Paintbrush	x																	
C. lutescens	Stiff Yellow Paintbrush	x	x					x	x										
C. miniata	Red Indian Paintbrush									x	x						x		
Collinsia parviflora	Blue-eyed Mary		x		x														
Linaria vulgaris	Butter-and-eggs			x											x				
Pedicularis groenlandica	Elephant's-head									x									
Penstemon albidus	White Beardtongue			x	x	x													
P. confertus	Yellow Beardtongue			x				x			x								
P. ellipticus	Creeping Beardtongue	x																	
P. nitidus	Smooth Blue Beardtongue	x	x	x	x	x	x	x	x	x			x						
P. procerus	Slender Blue Beardtongue			x															
Veronica alpina	Alpine Speedwell	x?																	
V. peregrina	Hairy Speedwell														x				
LENTIBULARIACEAE (Bladderwort Family)																			
Pinguicula vulgaris	Common Butterwort									x	x				x				
PLANTAGINACEAE (Plantain Family)																			
Plantago canescens	Western Ribgrass		x																

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P. elongata	Linear-leaved Plantain														x				
P. major	Common Plantain												x						
P. patagonica	Pursh's Plantain					x													
RUBIACEAE (Madder Family)																			
Galium boreale	Northern Bedstraw							x		x									
CAPRIFOLIACEAE (Honeysuckle Family)																			
Lonicera caerulea	Blue Fly Honeysuckle																		x
L. dioica	Twining Honeysuckle							x		x			x		x			x	
L. involucrata	Bracted Honeysuckle	x							x	x	x	x		x	x	x	x	x	x
L. tartarica	Tartarian Honeysuckle		x			x			x						x				
L. utahensis	Utah Honeysuckle	x																	
Sambucus racemosa	Elderberry								x						x		x		
Symphoricarpos occidentalis	Buckbrush			x					x										
Viburnum edule	Low-bush Cranberry								x	x	x	x		x	x	x	x	x	x
V. opulus	High-bush Cranberry												x	x	x			x	
ADOXACEAE (Moschatel Family)																			
Adoxa moschatellina	Moschatel								x						x	x			x
VALERIANACEAE (Valerian Family)																			
Valeriana dioica	Northern Valerian								x						x	x	x		x
V. sitchensis	Mountain Heliotrope	x																	
CUCURBITACEAE (Cucumber Family)																			
Echinocystis lobata	Wild Cucumber					x													
CAMPANULACEAE (Bluebell Family)																			
Campanula rotundifolia	Harebell					x				x									
COMPOSITAE (Composite Family)																			
Achillea millefolium	Common Yarrow	x		x		x				x	x		x						
Agoseris glauca	False Dandelion			x	x					x	x		x						
Anaphalis margaritacea	Pearly Everlasting	x					x												
Antennaria spp.	Pussytoes											x							
A. anaphaloides	Tall Everlasting		x		x			x											
A. aprica	Low Pussytoes		x	x	x	x		x					x						
A. dimorpha	Cushion Everlasting			x?															
A. lanata	Woolly Pussytoes									x?									
A. neglecta	Broad-leaved Pussytoes	x							x	x	x			x	x	x	x		
A. parvifolia	Small-leaved Everlasting		x						x	x	x				x			x	x
A. rosea	Rosy Everlasting		x	x	x				x	x	x								x
A. umbrinella	Brown-bracted Mountain Everlasting		x																
Arnica angustifolia	Alpine Arnica									x	x								
A. cordifolia	Heart-leaved Arnica	x			x		x		x	x	x	x					x	x	
A. fulgens	Shining Arnica																	x	
Balsamorhiza sagittata	Balsamroot	x	x				x												
Cirsium vulgare	Bull Thistle					x?				x?									
Crepis tectorum	Annual Hawksbeard			x									x		x		x		
Erigeron acris	Northern Daisy Fleabane									x									
E. annuus	Daisy Fleabane					x?													
E. caespitosus	Tufted Fleabane			x		x			x										
E. compositus	Compound Fleabane		x				x			x	x								
E. glabellus	Smooth Fleabane										x			x					
E. peregrinus	Wandering Daisy									x?									
E. philadelphicus	Philadelphia Fleabane												x						
E. radicatus	Dwarf Fleabane		x																
Gaillardia aristata	Brown-eyed Susan							x											
Heterotheca villosa	Golden Aster	x							x	x									
Hymenopappus filifolius	Tufted Hymenopappus		x																
Hymenoxys acaulis	Stemless Rubberweed		x	x	x														
H. richardsonii	Colorado Rubberweed		x	x		x													
Matricaria matricarioides	Pineappleweed		x	x	x				x		x				x				
M. perforata	Scentless Chamomile														x				
Petasites nivalis	Sweet Colt's-foot									x?									
P. palmatus	Palmate-leaved Colt's-foot											x							
P. sagittatus	Arrow-leaved Colt's-foot								x	x		x	x	x	x	x			x
Senecio canus	Silvery Groundsel	x	x	x				x	x	x	x		x						
S. congestus	Marsh Ragwort													x	x			x	
S. integerrimus	Entire-leaved Groundsel		x		x														
S. vulgaris	Common Groundsel		x	x															
Taraxacum officinale	Common Dandelion	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x

1994 MAY SPECIES COUNT: PLANTS IN FLOWER

FAMILY SCIENTIFIC NAME	COMMON NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Townsendia parryi	Parry's Townsendia	x																	
Tragopogon dubius	Yellow Goat's-beard	x		x		x			x						x				

Total number of species: 464

1 Waterton Lakes National Park (97)
2 Whiskey Gap (151)
3 Lethbridge and area (112)
4 Cypress Hills Provincial Park (87)
5 Medicine Hat (67)
6 Claresholm (27)
7 William's Coulee (Nanton) (77)
8 Calgary and area (125)
9 Yamnuska/Bow Corridor/Kananaskis River (142)
10 Banff/Canmore/Wind Ridge (131)
11 Rocky Mountain House (32)
12 Buffalo Lake/Stettler (63)
13 Coyote Lake (87)
14 Edmonton and area (162)
15 Entwistle (71)
16 Edson and area (79)
17 Grande Prairie area (42)
18 Fort McMurray (114)

? Flowering record and/or species identification in question.

Stemless Raspberry *(Rubus arcticus)*

Photo: J.D. Johnson

A Possible Addition to the Vascular Flora of Alberta

J.D. Johnson[1] *and G.W. Scotter*[2]

In 1985 the herbarium of the Canadian Wildlife Service was donated to the Canadian Forestry Service herbarium (CAFB) at the Northern Forestry Centre in Edmonton. Because of a shortage of time and manpower, it was several years before the Wildlife Service collection could be fully integrated into the forestry herbarium. During the process, a number of interesting specimens, in terms of their distributional record, turned up. One of these was a specimen of *Draba* (Scotter 21420), collected on June 13, 1973 from a rock outcrop at an elevation of 1585 m along the Crandell Lake Trail in Waterton Lakes National Park (49° 05' N, 113° 58' W). It was identified by Gerald Mulligan at the Biosystematics Research Institute in Ottawa as *Draba palanderiana* Kjellm. No date of identification was attached. As this species is not mentioned as occurring in Alberta in any of the relevant references (Hulten 1968; Kuijt 1982; Moss 1983; Mulligan 1976; Porsild and Cody 1980; Scoggan 1978), there was some question as to whether or not the specimen was correctly identified. It was returned to Ottawa for verification where it was annotated by Mulligan as ''possibly *D. palanderiana*, but too immature for a positive identification.''

In habit this species is similar to *D. nivalis*, but it is stouter and has much larger and showier flowers (Porsild and Cody 1980). The petals are 4-5 mm long (versus 2-4 mm in *D. nivalis*), the style is prominent, and some silicles frequently abort (Mulligan 1976). Unfortunately, the Scotter specimen does not have any fruits. *Draba lonchocarpa*, another similar species, differs from *D. palanderiana* in having smaller flowers, a short style and narrowly oblong versus narrowly elliptic silicles. The prominent midrib on the underside of the leaves distinguishes *D. palanderiana* (Porsild and Cody 1980).

The distribution of *D. palanderiana* is Amphi-Beringian, wide ranging in the mountains of northern and central Alaska and the Yukon Territory, eastward to the Richardson and Mackenzie mountains in the Northwest Territories (see maps in Hulten 1968 [as *D. caesia*] and Porsild and Cody 1980). The occurrence of this species in Waterton Lakes National Park would represent a wide disjunction from the main range of the species. However, such a wide disjunction is not unknown. A number of other species have wide gaps in their distribution between the mountains of southwestern Alberta and those in the southern Yukon and Northwest Territories (e.g., *Claytonia megarhiza*, *Tolmachevia integrifolia*, *Ranunculus grayi* and *Smelowskia calycina*). *Draba palanderiana* should be searched for more extensively in Waterton Lakes National Park and in other mountainous areas of southwestern Alberta to obtain a more accurate picture of its distribution.

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Skunkberry *(Ribes glandulosum)* Photo: J.D. Johnson

A Possible Addition to the Vascular Flora of Alberta

J.D. Johnson and G.W. Scotter

In 1987 the herbarium of the Canadian Wildlife Service was donated to the Canadian Forestry Service herbarium (CAFB) at the Northern Forestry Centre in Edmonton. Because of a shortage of time and manpower in the interim, [illegible] the Wildlife Service collection [illegible] the forestry herbarium. During the process some interesting specimens, in terms of their distributional range, turned up. One of these was a specimen of [illegible] (Scotter 21429), collected on June 18, 1973 [illegible] at an elevation of 1580 m along the [illegible] Creek [illegible] Lakes National Park [illegible]. It was [illegible] by Gerald Mulligan of the Biosystematics Research Institute in Ottawa [illegible] distribution was attached. As this [illegible] occurring in Alberta [illegible] (Packer 1983, [illegible] 1988, Scoggan 1978) [illegible] not the specimen was correctly identified. [illegible] for verification [illegible] possibility of [illegible] introduction.

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Literature Cited

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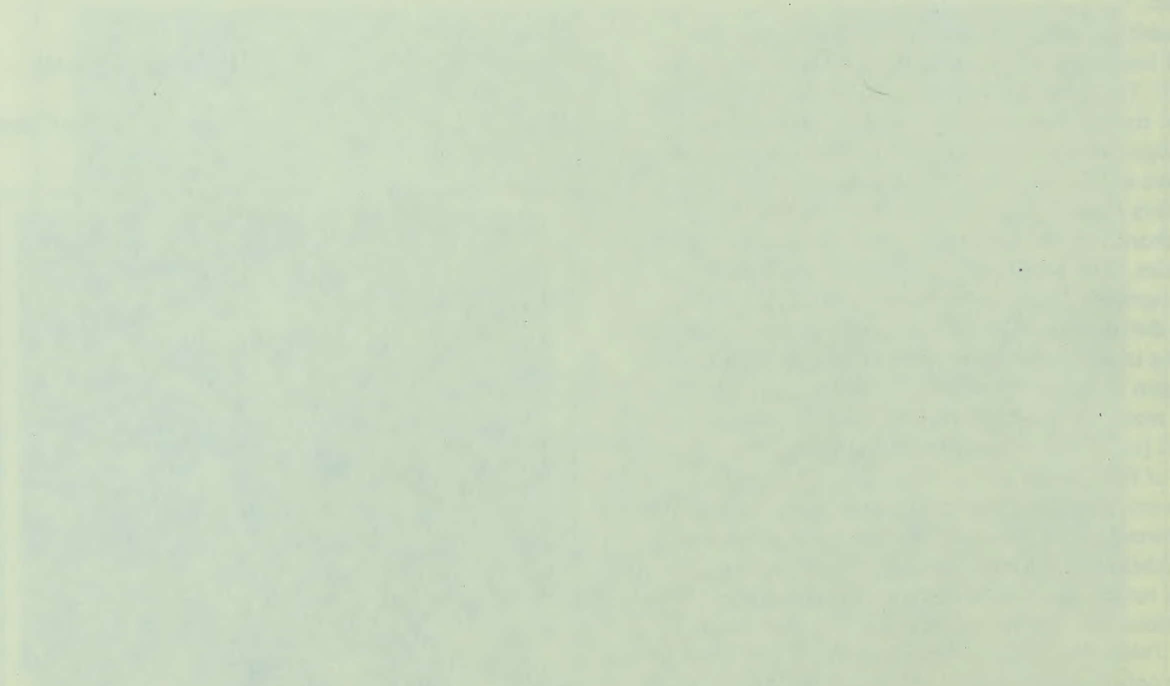

[illegible] Photo: J.D. Johnson

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Prairie Potholes: Trout or Ducks - Ministik Lake - Range Extension of White-tailed Deer
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Eurasian Wigeon - Caspian Tern - Wood Duck - Greater Scaup
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CONTENTS

President's Page ... 22

Editor's Page ... 23

Prairie Potholes: Trout or Ducks, Donald F.J. Hilton ... 24

Eurasian Wigeons Observed in the County of Camrose, Chet L. Olson ... 27

Burrowing Owl Endangered by Legislative Gap ... 27

Glimpses of Little-Known Western Lakes and Their Bird Life Ministik Lake, Alberta, J.A. Munro ... 28

Caspian Terns Increasing in Southern Alberta, Lloyd Bennett ... 30

Alberta Issues ... 31

Coyote Lake Conservation Area, Pat Clayton ... 33

Range Extension of White-tailed Deer, R.S. Gainer ... 34

Wood Duck Sighting, Jim Lange ... 37

Summer Student at Wagner, Natasha Klingsh ... 38

1995 Emerald Winners ... 39

Sighting of Greater Scaup, Mary E. Quapp ... 40

Great Northern Forest - A Review, R. Edrea Daniel ... 40

Announcements ... 42

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May Species Count-Plants: July 15, J. Derek Johnson, Northern Forestry Centre, 5320 - 122 St., Edmonton, AB T6H 3S5.

Compiler cooperation is greatly appreciated.

Honorary Member: Professor W. Ray Salt

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The Federation of Alberta Naturalists is composed of natural history clubs from across the province. The aims of the Federation are:

(a) To encourage among all Albertans, by all means possible, an increase in their knowledge of natural history and understanding of ecological processes;
(b) To promote an increase in the exchange of information and views between natural history clubs and societies in Alberta;
(c) To foster and assist in the formation of additional natural history clubs and societies in Alberta;
(d) To promote the establishment of natural areas and nature reserves, to conserve and protect species, communities or orther features of interest;
(e) To organize, or coordinate symposia, conferences, field meetings, nature camps, research and other activities whether of a similar or dissimilar nature;
(f) To provide the naturalists of Alberta with a forum in which questions relating to the conservation of the natural environment may be discussed, so that united positions can be developed on them, and to provide the means of translating these positions into appropriate actions.

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President's Page

Harvey Gardner

I ended the most recent "President's Page" by stating that unenlightened human greed is a poor guide in long-term planning. Bear that in mind now:

March 21, Maryhelen Posey (FAN Land Use Chair) and representatives of Alberta Wilderness Association (AWA), Canada, Parks and Wilderness Society (CPAWS), and World Wildlife Fund (WWF) met with U.S. Pacific Northwest Gas regulators on perceptions of petroleum/environment impacts and questions of Alberta's ability to fulfill contracts.

March 28, the Alberta government released its Special Places 2000 Policy, which was immediately followed by FAN, AWA, CPAWS and WWF protesting the weakness of the policy and the lack of positive action. The government's official version of SP 2000 does not discourage industrial development in "protected" areas and indicates no commitment to legislated protection for designated sites. (Hence the boycott of the government's SP 2000 process by these groups.)

April 19, Alberta was given an "F" by WWF on its wilderness conservation report card.

May 9, the Presidents of AWA and FAN, the Alberta President of CPAWS, the Alberta Regional Director of WWF (and two local directors), plus a past President of AWA met with representatives including the CEO and President of the Board of Governors of the Canadian Association of Petroleum Producers (CAPP) hoping for support on the "coalition" boycott of SP 2000 and general discussion of environmental issues. CAPP supported the 1992 SP 2000 report because the oil and gas companies wanted to know which areas would be off limits for exploration/drilling. (They agree some should.)

May 11, Environmental Protection Minister Ty Lund announced the rescinding of cabinet approval of the Natural Resources Conservation Board decision to establish a wildland recreation reserve at Westcastle (an area once part of Waterton National Park)!

May 12, the Eastern Slopes Environment and Energy Committee (ESEEC)--including FAN, AWA, CPAWS, RMEC and the Alberta Fish and Game Association--met with CAPP and several oil/gas companies and government representatives. The environment coalition decided to suspend ESEEC meetings and sever that contact with industry until some positive developments occur.

May 30, the International Network to Protect Alberta Wilderness (INPAW) was established.

June 7, Minister Ty Lund announced that legislation would be introduced at the fall sitting of the Legislature to protect the Willmore Wilderness from industrial development.

Fall is a long time away, and there is no guarantee whatever that the aforementioned legislation on the Willmore Wilderness will pass, just as the SP 2000 report couldn't get through cabinet unchanged. We can't rely on the government's empty promises.

Willmore is only one of several areas that have long since been through public processes, endless consultation and approval for protected status, yet not acted on because of opposition by special interests. Five areas, and Willmore, must receive action from the government before the coalition will officially participate in SP 2000.

It appears that this government has decided that environmental protection doesn't pay; that environmental lobby groups are from another planet (and being essentially urban represent no valid voters). There is a perception that our groups have "shot their bolts"; that the populace and the media have lost interest in our issues.

If you agree with the stand taken by the coalition please write to Environmental Protection Minister Ty Lund, and contact your MLA. Let them know we are still here. If you disagree, please write me, so I'll know.

Thank you.

* * *

Correction: Our apologies to artist John Maywood, who contributed the drawing on the cover of the Spring 1995 issue of the *AN*, and whose name we spelled incorrectly. The drawing was taken from *Saving the Strands of Life, Alberta's Biodiversity (*1992) prepared for the Environment Council of Alberta by Maryhelen Posey. Also, field notes indicate the egret reported at Jessie Lake in the Winter 1994 *AN* was not a Snowy Egret. The bird reported had a yellow bill and therefore may have been a Cattle Egret.

Editor's Page

From the Editor:

These are perilous times for wilderness in this province. Witness the rescinding of the NRCB ruling to establish the Castle Wildland Receation Area; the leasing of the Sheep River Wildlife Sanctuary to allow petroleum exploration; and the on-going logging of private lands and northern forests.

Then there is the new Special Places 2000 policy. This policy is not just a watered-down version of the original policy, but "an industrial development strategy." Basically, the policy defines protected natural areas as places where industrial and commercial development--logging, oil and gas exploration or drilling, etc.--can be "integrated" with protection! This policy has opened up all future and most existing protected areas in the province to the possibility of development. The only exceptions are national parks (under federal jurisdiction) and three Wilderness Areas.

Twenty-one organizations have joined a coalition (originally begun by AWA, CPAWS, WWF and FAN) to boycott this retrogressive policy. The Alberta-based coalition, calling itself INPAWS, the International Network to Protect Alberta Wilderness, held a press conference June 21 to coincide with the first meeting of the Special Places Provincial Coordinating Committee. The government claims this committee has "balanced representation," although only one environmental group (WWF) was present, as an observer.

The coalition will not recognize the Special Places 2000 policy nor participate in the government process until certain basic principles are put back into the policy, including "making the goal of Special Places one of legally establishing protected areas to represent the full diversity of Alberta's natural landscapes and unique natural features." The coalition also wants legislation changed to protect provincial parks and wilderness areas from development, and wants five wilderness areas that have already gone through the review process to be legally established: the Bighorn Wildland Recreation Area, Wild Kakwa, Elbow-Sheep River headwaters area, Waterton-Castle Wildland Recreation Area and Ross River.

Only 3-5 percent of Alberta would be required to complete a network of protected areas representative of the province, less than half the land given to ALPAC for its northern operation.

My thanks to those of you who continue to send us articles for the *AN*. Keep them coming--the success of this magazine is dependent on your interest. Finally, we are looking for an educator, parent and/or someone with a genuine interest in children's books (and reasonable writing style) to review children's books on wildlife and environment. If you are this person please contact the editor.

R. Edrea Daniel

What Was That!

Check the supplement in this issue of the *Alberta Naturalist* for details on the Alberta Birdlist Program. It gives details on the program and how birders of all skill levels from casual amateur to professional biologist can get involved. Here is an opportunity to contribute to the knowledge of bird populations in the province as well as obtain free software to manage your own personal bird records. Read the article and register to be involved in the new wave of birding.

Before we review some of the interesting bird sightings around the province, let us tell you about a new non-profit organization called the North American Butterfly Association (NABA). This is continent-wide group focusing on recreational, non-consumptive butterflying. The group indicates that butterflying is an activity complementary to birding as butterflies tend to be active when birding activity hits a lull (mid-day and or midsummer). For more information on NABA see page 26.

Charlie Fix of the Stony Plain area recently had a Rufous Hummingbird at his feeder. It was competing with five Ruby-throated Hummingbirds that are regulars at the feeder. The Rufous Hummingbird is usually found in the foothills and mountains.

The Peace Parkland Naturalists reported results of their May species count and Baillie Birdathon. Jeanne Smith and Joan Kerr recorded sightings of American Avocet, Wilson's and Red-necked Phalarope, Mourning Warbler, LeConte's Sparrow and Sharp-tailed Sparrow.

The Exciting Sightings section of the April *Sagebrush Chronicle* reports Lloyd Bennett's sighting of two Eurasian Wigeons in the Taber area. He has been reporting this species consistently for the last several years. Several observers have reported the Eastern Screech Owl in southwestern Alberta. The exact location is being withheld to protect this species from disturbance. It is felt that in previous years when it was reported, over-eager birders may have caused it to abandon its roost.

The results of the 1994 Edmonton Christmas Bird Count show three new species added to the count, with a new tally of 103 species. Some of the highlights included a female Harlequin Duck, which was recorded on the river near Gold Bar Park, and Lincoln's Sparrow and White-crowned Sparrow, recorded in Mill Creek Ravine. Six species of hawks/falcons, including two Sharp-shinned Hawks, and five species of owls were seen, with an appearance by an exceptionally rare Barred Owl.

Prairie Potholes: Trout or Ducks

Donald F. J. Hilton

Across the Canadian prairies are thousands of small, shallow, eutrophic ponds (often termed potholes). These may be natural water-filled depressions or ponds artificially created by farmers (e.g., by digging a pond or by damming the lower end of a coulee) as a water source for irrigation or livestock (Miller and Thomas 1956). They occur primarily in the grassland and aspen parkland regions of the agricultural zones in southern Alberta, Saskatchewan and Manitoba (Swanson 1978).

Water sources for these ponds are springs (rarely) or, more commonly, surface drainage from spring snowmelt and summer rains. Long, cold winters in this part of Canada result in thick ice and snow cover over the ponds. Consequently, oxygen levels are severely depleted by late winter, and any fish in the pond from the preceding summer cannot survive to the following spring (Anonymous 1991; Barica 1977; Lawler et al 1974; Swanson 1978). This has resulted in these small water bodies being referred to as winterkill ponds (Ayles 1975; Johnson et al 1970; Patriarche and Merna 1970; Sunde et al 1970). Lakes which winterkill are usually less than 40 ha in surface area and less than 7-8 m deep (Johnson et al 1970).

Although trout cannot survive winter conditions, various invertebrates can, and ponds support large populations of freshwater amphipods *(Gammarus lacustris)*, midges *(Chaoborus)* and various insects (Miller and Thomas 1956; Holmstrom 1972; Sunde et al 1970; Swanson 1978). These invertebrates make excellent natural trout food and can support a trout population throughout the summer months. This combination of factors led Miller and Thomas (1956) to experiment with introducing rainbow trout *(Oncorhynchus mykiss)* fingerlings into certain Alberta pothole ponds in the spring, allowing them to feed on the pond's invertebrate fauna (without any supplementary feeding) and then harvesting them in the fall before pond freeze-up. Their success led many others (refer to Hilton 1993 for a complete list of references) to undertake various studies aimed at developing seasonal trout aquaculture operations in prairie farm ponds. All these studies confirmed that, of the fish species so far investigated, *O. mykiss* is the most suitable for extensive aquaculture in prairie pothole ponds.

It is also interesting to note that experimental culture of lake whitefish *(Coregonus clupeaformis)* and walleye *(Stizostedion v. vitreum)* has been attempted in prairie pothole ponds with some success (Johnston et al 1992; Lawler et al 1974; Scidmore, 1970; Walker and Applegate, 1976); whereas experimental plantings of Kokanee salmon *(O. nerka)* in two lakes was not successful because of poor growth (Lawler et al 1974). However, unlike rainbow trout farming, the purpose of culturing these other species was stock enhancement. In this management scheme, fingerlings introduced in early spring would reach a sufficient size by the end of one growing season and could then be netted in late autumn for immediate transplantion into larger lakes where they would become part of that lake's sport fishery. The walleye stock enhancement project reported on by Scidmore (1970) was different in the sense that the lakes in which these fish were reared (in Minnesota) only winterkilled every 3-5 years. Consequently, walleye were not removed in the autumn and, instead, became the focus of each lake's sport fishery until the lake eventually winterkilled.

Due to winterkill, ponds will not normally support other fish species. Consequently, there is no danger of predation on introduced trout fingerlings by resident fish species. This is an important feature of winterkill ponds because it also means that should the farmer not capture all the trout during fall netting, there won't be any survivors the following spring to prey upon introduced fingerlings. Any prairie lake deep enough to escape winterkill would not be suitable for trout aquaculture because there could be a resident fish population--either uncaptured autumn trout or other species such as yellow perch *(Perca flavescens)* or pike *(Esox lucius)*) that would prey upon fingerlings (Miller and Thomas 1956).

Most prairie ponds are well supplied with a variety of aquatic invertebrates that can serve as a food source for rainbow trout. These include molluscs such as snails, various insects, oligochaete worms, leeches and crustaceans (Holmstrom 1972; Swanson 1978). The most important are *Gammarus lacustris* (often referred to as a freshwater shrimp) and *Chaoborus,* the larval stage of which occurs in high populations. Not only is *Gammarus* an important food source for trout, but it also has the added advantage (as far as human food aesthetics are concerned) of imparting an orange-pink colour to the fish's flesh (Anonymous 1988). Holmstrom (1972) demonstrated that amphipods such as *Gammarus* and *Hyallela* are the dominant dietary components for pothole trout, and that amphipods are of increasing importance as the growing season progresses.

An interesting perspective on competition for food organisms in prairie pothole ponds is raised by Swanson and Nelson (1970). They emphasize that a variety of waterfowl species make extensive use of prairie ponds for breeding and feeding habitat. For instance, amphipods comprise the dominant food item for breeding adult and juvenile Lesser Scaup *(Aythya affinis)*. Many other waterfowl species also consume large quantities of insect larvae, especially chironomids. This raises the problem of competition for major dietary food items (especially *Gammarus* and *Chaoborus*) between farmed trout and certain waterfowl populations. For instance, Parker and Schindler

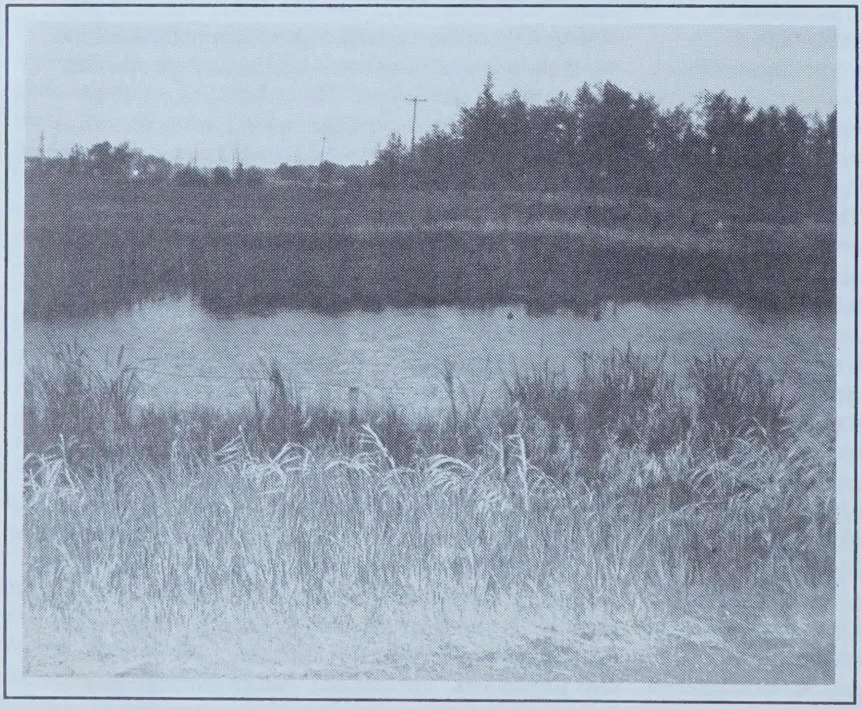
(1995) documented the devastating effects introduced trout had upon the invertebrate fauna of mountain lakes that previously did not have a natural trout population. These deleterious effects even included extirpating certain invertebrates.

In recent years, agriculture on the Canadian prairies has been beset by a number of economic problems, including lower grain prices; higher costs for transportation, farm machinery, fertilizer and herbicides, and fuel, etc.; reduced demand for beef cattle; high interest rates on land and equipment; excessive debt; and unfavourable weather conditions such as droughts. All these have combined to drive many prairie farmers into bankruptcy, resulting in more farmers leaving the industry than ever before. Many prairie farmers still remaining in the agricultural industry are facing severe financial difficulties. Therefore, any activity (such as raising rainbow trout in natural potholes on the farm property) that would generate additional farm income, with little cash outlay, would provide welcome benefits for beleaguered farmers.

Trout raised in farm ponds can be used to generate income for prairie farmers in four ways. First, harvested fish can be frozen and used by the farm family as a food source during winter months, thus reducing the family's food bills. Second, if farms are within easy driving distances of an urban center, farmers can advertise the fact that their ponds are available as U-Fish operations (Anonymous 1991; Wiskel 1992; Zolkewich 1992). City-dwellers (who might not otherwise have a convenient opportunity to go angling) then pay farmers a fee for fishing from their ponds, plus an amount per fish caught. Third, farmers can sell their trout in the fall to friends and neighbors for a mutually agreeable amount, or trade a certain quantity of fish for another commodity or service that the farmer requires (e.g., assistance with harvesting, eggs from a neighbor who raises chickens, etc.). Fourth, farmers who obtain a commercial aquaculture licence can sell their harvested trout to wholesalers, retailers or the restaurant trade.

However, given the fact that these same prairie potholes serve as a major breeding and feeding habitat for large waterfowl populations, serious consideration should be given to an evaluation of each particular lake or pond to determine what is the most suitable use of its invertebrate fauna; i.e., to produce fish or ducks.

In the final analysis, this decision may come down to a purely economic one: what is the dollar value of each duck or fish produced by a prairie pond? Such calculations are easily done for farmed trout since the farmer can (and should) record all the income and expense figures necessary to prepare an income statement that will show whether her/his fish-farming operation is profitable. It is much more difficult to determine the value of a duck because one has to take into account not only its value to the consumptive sector (i.e., hunters), but also its importance to non-consumptive users (e.g., birdwatchers, naturalists). In addition, one must also factor into this cost-benefit equation the potential negative costs that waterfowl may incur by consuming part of grain farmers' crops. This is a thorny problem and one that deserves to be investigated by fish and wildlife agencies in those prairie regions where sideline fish farming is a potential farm activity.



Pothole southeast of Stony Plain, Alberta.

Photo: Ann Stefura

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Butterflies

A new non-profit group, the North American Butterfly Association (NABA) has recently formed. NABA is interested in recreational, non-consumptive (i.e., netless) butterfly appreciation, including identification through binoculars, butterfly gardening, photography and species listing. NABA publishes a quarterly colour magazine, *American Butterflies*; a newsletter, *Anglewing*; and conducts and publishes the annual U.S. 4th of July Butterfly Counts. Regular dues are $30 outside of the U.S. To join, or for more information, contact:

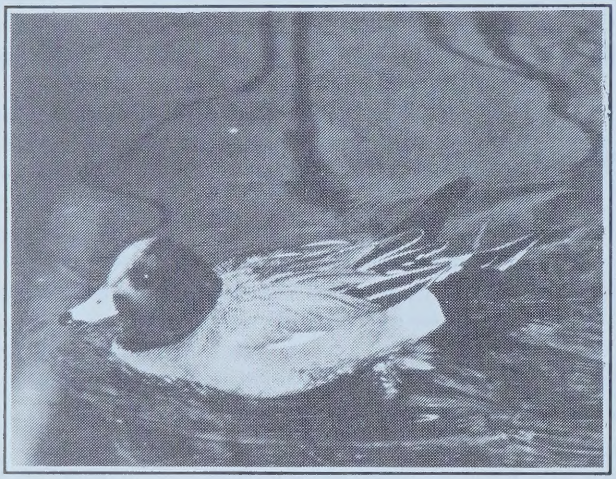
NABA, 4 Delaware Rd.
Morristown, NJ 07960
(201-285-0907)

Eurasian Wigeons Observed in the County of Camrose

Chet L. Olson

On April 3, 1995, about 5:15 p.m., I saw two male Eurasian Wigeons *(Anas penelope)* swimming in a large, partially ice-covered slough about halfway between Bawlf and Ohaton in the County of Camrose. I returned an hour later with Gail Hamilton, and we both observed one male. Meanwhile, I had notified Morley Riske, Professor Emeritus of Biology at Augustana University College in Camrose, who arrived shortly afterwards and identified one male Eurasian Wigeon. About 9:00 a.m. the following morning I again saw one male swimming in the same slough, but return visits at 6:00 p.m. and on subsequent days yielded no further observations of the species.

The weather had turned colder with snow flurries during the night of April 2, so that most sloughs in the area were frozen over on April 3-4, except where congregations of migrating waterfowl kept them open. The Eurasian Wigeons were observed swimming and occasionally tipping to feed in company with a cluster of American Wigeons that, along with Mallards, Northern Pintails and Canada Geese, were competing for the limited open water with some 2,000 Tundra Swans intent on bathing and preening. Five Male Ring-necked Ducks and a pair of Green-winged Teal were also identified in the crowded pool. The Eurasian Wigeons swam free of the crowd often enough that they were easily identified by the rust-coloured head, bright creamy forehead and crown, pinkish tan breast, and gray back and sides, but the distance was too great for a good photograph.



Eurasian Wigeon Photo: Edgar T. Jones

Pinel et al. (1991) noted that observations of the Eurasian Wigeon in Alberta have been "mainly from the grassland region." Of the 13 sightings that they reported for 1971-80, only three were north of Calgary, including one in Edmonton and two in the Grande Prairie area.

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Chet Olson, a member of FAN, has been recording his bird observations in the County of Camrose since 1977.

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Burrowing Owl Endangered by Legislative Gap

The release April 7 of Canada's 1995 endangered species list reinforces the immediate need for a federal *Endangered Species Act,* according to the Canadian Endangered Species Coalition.

The list, released by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), has added new species to Canada's growing list of species at risk. In addition, the list updated the status for the Burrowing Owl from "threatened" to "endangered" -- indicating it has moved one step closer to extinction.

Members of the Canadian Endangered Species Coalition voiced their frustration at receiving another COSEWIC list for which there is no legal protection. "It's like running a hospital which records the names of its patients, assesses them, but does not treat them," noted Stewart Elgie of the Sierra Legal Defence Fund.

The Coalition noted that the federal government is moving towards protecting Canada's species at risk with the expected announcement of public consultations and the Minister's Taskforce. "We have been urging the minister to convene the Taskforce to advise her on federal legislation," said Julie Gelfand of the Canadian Nature Federation. "Canadians have been telling us they want strong legislation to protect Canada's endangered species and habitat. The government appears to have heard those voices."

The Coalition is supported by over 50 national and regional organizations including the Canadian Bar Association, The Canadian Labour Congress and The Body Shop Canada. Last fall over 75,000 Canadians signed a petition calling on the federal government to pass an *Endangered Species Act.*

Glimpses of Little-Known Western Lakes and Their Bird Life
Ministik Lake, Alberta

J. A. Munro

Editor's Note: This article has been reprinted from the Canadian Field-Naturalist, December 1929. The Ministik Lake area is a favourite destination of ATV users, snowmobilers, hikers and bird watchers, resulting in conflicts between users. So far, a provincially recruited management committee has not been able to resolve the conflicts.

Ministik, the lake of many islands, is one of a series of attractive lakes in Townships 50 and 51-21-W4. Residents recognize two lakes, the "Small Lake" and the "Main Lake". The western portion of both divisions, with deeply indented shore lines, contains so many islands, separated by such narrow channels, that a stranger is often at a loss to navigate the labyrinth; or to decide what constitutes the islands and what the mainland. Practically all the islands are timbered, some with poplar, birch and willow, others with large spruce in addition to the deciduous growth. The exceptions are merely sandbars or rock-reefs and many of those which high water submerge support a heavy growth of bog-rush and phragmites. The shores of the mainland are muddy for the most part and the decomposed vegetation forming the top layers gives forth a strong odour. The shores of the islands, on the other hand, are sandy or stony, some encircled with a growth of bog-rush, others free of aquatic vegetation.

The lake is shallow and the muddy, discoloured water, although apparently not alkaline, has a disagreeable, weedy taste. *Potamogeton pectinatus* grows luxuriantly in all the shallow portions as do other species of the water plants eaten by ducks. In certain aspects this tree-girt lake suggests some of the Northern Ontario summer resorts but the resemblance is only superficial--instead of clear, amber-coloured water here are weed-choked channels, and the sight of fluttering terns or soaring pelicans soon dispels the illusion.

Ducks of many species nest on the islands or along the marshy shores of the mainland and the lake serves also as a nursery for young ducks that have been hatched in the fields farther inland. Lesser Scaup and Canvas-back are the commonest diving-ducks and it is quite usual to find mixed broods of these two species. Pintail, Mallard, Baldpate, Shoveller and Blue-winged Teal are about equally represented. Amongst the diving-ducks late broods are the rule rather than the exception. In late August it is of everyday occurrence to find downies only a few days old and Mr. Kinnaird of Edmonton reports two Lesser Scaups incubating eggs on August 12th, 1923. Needless to say ducks hatched late in August in the Province of Alberta have little chance of joining the southern migration.

It is believed this state of affairs is due, in part at least, to the large number of crows. The mainland and islands are well wooded and provide the necessary secluded nesting sites where crows may breed in security, while their food problem in early summer is solved by the abundant supply of water-bird's eggs. These are hunted systematically and persistently. During the past three years crow control work has been undertaken on a small scale and conditions have somewhat improved.

Crane Island, familiar to all the local residents as a breeding ground for the Great Blue Heron, was first visited on August 17th, 1922, and at this date most of the estimated seventy nests were deserted. In possession were twelve full-grown young, standing motionless in weird attitudes on the bulky nests or in the spruces and birches which supported them. Below the nesting trees, some of which had recently died, broken egg-shells, skeletons of youngsters that had fallen from the nests, and other debris usual to such colonies was hidden by a rank growth of raspberries, jewel weed and nettles. A pair of Turkey Vultures accompanied by one young bird which had been raised on the island, two Western Tanagers, a flock of Siskins and several Hairy Woodpeckers also were noted in the thick timber.

On June 21st, 1924, the colony was estimated at fifty pairs. Some of the nesting trees had fallen and many others were dead or dying. A great commotion and the susurration of many beating wings filled the air as I approached the rookery through the tangled island vegetation while birds launched forth hurriedly from the trees, long legs dangling awkwardly in the first few moments of alarm. Some quickly settled again on the trees in the strained attitudes of watchfulness, ready to depart at the first hostile movement; others, less parentally solicitous, in powerful and leisurely flight, circled about the island high above the tree tops.

On another visit (August 6th, 1925) only three birds were left of the summer colony--a full-grown youngster standing on a nest, another flying over the island and the third on the lake shore, in statuesque relief against a background of tall grasses.

A small stony, sand-encircled reef close to Crane Island is yearly occupied by a nesting colony of Common Terns--holding tenure perhaps with difficulty for the reef is a popular resting-place with other water-fowl. Pelicans find it to their liking, Canada Geese also, and in late August, after the young terns were flying, I have seen it crowded with Bonaparte's Gulls. Common Terns also colonize a similar reef two miles to the eastward. When visited on August 6th, 1925, it was crowded with migrant

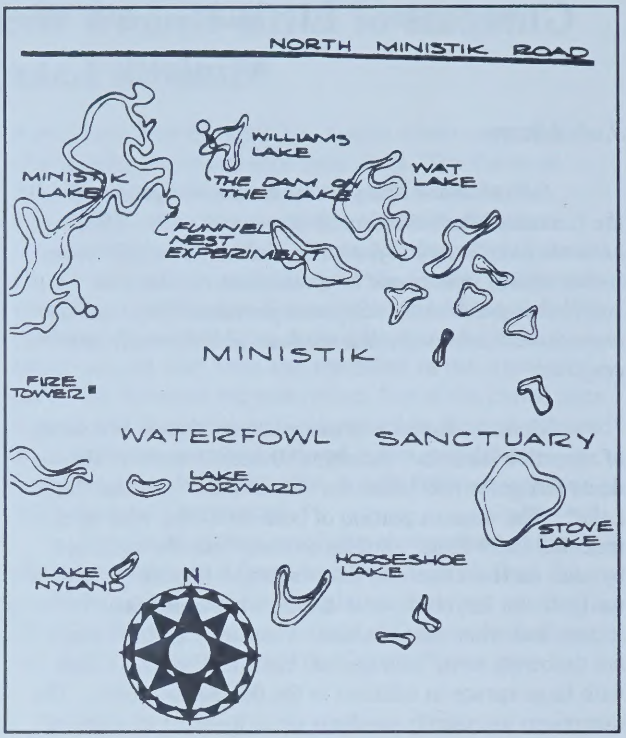
Franklin's Gulls and almost lost to view amongst them stood the Terns with their full-grown young. One Tern, in the great flock that left the reef upon the boat's approach, returned to hover over a particular spot exactly as do nesting parents in fluttering anxiety for their young; but a careful search revealed nothing save one old, broken egg-shell hidden amongst the stones. The reef was swept clean; of the Tern colony in solitary and jealous occupation only a few weeks before, no trace remained except the broken egg-shell.

Ministik is much favoured by Bonaparte's Gulls; immature birds are seen all through the summer, and in August, when adults and young are drifting south, often the lake is crowded with these lagging migrants--at times they seem to outnumber all other water-fowl. This gull has nested not more than seventy-five miles distant in an air-line to the north-west, and, since receiving a report several years ago of small gulls nesting in the spruce trees on a small island in Ministik Lake, there has been a hope, so far unfulfilled, of finding a nesting colony here.

Eared Grebe, Holboell's Grebe, Western Grebe, Bittern and Black Terns nest in the beds of bog rush and phragmites, while the more solitary and aggressive Loon selects some marsh-fringed point with an unobstructed view--one such situation has been occupied during three successive years. Lesser Yellowlegs, seen all through the summer, undoubtedly nest in the vicinity. Apart from this species, which is quite common during migrations, few waders visit the lake except Baird's, Least, Semipalmated and Solitary Sandpipers, which appear regularly in small numbers.

The following notes are from my diary of August 6th, 1925; A cool, stormy morning. From the tree-tops on the island came the lisping warblers--unseen for the most part but Tennessee, Yellow and Black and White were identified. A greenish-backed bird that kept high in the spruces, and of which I obtained little more than a glimpse of the back and a dendroicine tail, might have been a Black-throated Green. Saskatoon bushes are loaded with fruit sweeter and better-flavoured than the Okanagan berry. To these came Robins, Flickers, Purple Finches, a Cowbird, a Song-sparrow, a Baltimore Oriole, and a Cedar Waxwing with her brood of striped young. Crossbills alighted several times on the spruce tops, a Yellow-bellied Sapsucker silently worked over a dead birch and at the farthest corner of the island I flushed a full-grown brood of Ruffed Grouse that had been sampling the ripe bunch-berries, so vividly scarlet in their setting of brown Spruce needles.

In late afternoon I paddled to a number of the grassy islands in the north end of the lake. On one of these--really a bog-rush bed on a stony reef covered with a few inches of water--three old nests of Holboell's Grebe attracted attention. Beside one lay an addled egg and beside another three eggs floated amongst the rush stems. Adult Black Terns in winter plumage hovered over the rushes as they do in early summer over their nesting grounds but no signs of this particular marsh having been occupied were discovered. Bonaparte's Gulls, floating high on the water with tails and wings held at a rakish angel, were dotted in every direction over the placid lake while Franklin's Gulls congregated on a narrow beach, bordered by tall grasses, on the north shore.



Ministik Lake and Water Fowl Sanctuary, southeast of Edmonton, Alberta.

A female Buffle-head with three flying young allowed the canoe to approach within fifteen yards then burst from the water, and, slanting upward, circled the tree tops and dropped into the lagoon behind us. On several narrow, muddy points extending from a shore line of tall rushes fully grown broods of Blue-winged Teal and Mallard associated in small flocks. The one brood of White-winged Scoter noted still were in the down, so also were the majority of Canvas-back and Lesser Scaup.

To find eggs of two or more species of ducks in one nest is not uncommon on these prairie lakes and one wonders if, in the past, this has led to wrong identifications of downy young. To-day three broods of downy Lesser Scaup, amongst which swam several Canvas-back of the same age, passed along one of the lagoons. That these had been hatched together seemed probable, although the mixing of broods on this crowded lake is quite possible also.

Submitted by J. Cam Finlay.

Caspian Terns Increasing in Southern Alberta

Lloyd Bennett

In early May of 1991, I observed Caspian Terns *(Sterna caspia)* for the first time in the Taber area at Fincastle Lake, about 7 mi. east of Taber. There were three birds that exhibited courtship behaviour after a couple of days, giving me hope that they would nest there, since there are several islands in Fincastle Lake. The number later increased to five birds, and, later in May, I also saw single birds at two other lakes in the Taber area. However, they all left by early June.

I was surprised to find the terns again on June 9 at Lost Lake, which was an area I was covering for the Bird Atlas that year. Lost Lake is located north and west of Vauxhall, close to Enchant. Here I found what appeared to be two pairs on a mostly bare island in the lake. I presumed that the birds were nesting there, since they always seemed to be sitting in the same place. However, there was no positive proof of nesting until June 24, when I saw the first, tiny young being fed by its parents.

Later that summer, I was atlassing two other squares east of Vauxhall. I observed single Caspian Terns at two different lakes in that area, and, on a return trip, was able to confirm nesting at one of these lakes, Scope Lake. On that day, August 2, I was lucky enough to see a Caspian Tern pass close by me with a small fish in its bill. It was met by its mate, who took the fish away; then the pair flew out of sight towards an island in the middle of the lake. This sighting gave the second confirmed nesting for Caspians that year in the Vauxhall area.

Caspian Terns are large, impressive birds, as large as a Ring-billed Gull. The most distinctive marking is the dark orange bill, which is even larger than a Ring-bill's. A black cap extends to the nape, and the mantle is an even, light gray color. The underside is whitish, with dark primaries. The birds have a distinctive call, a very loud, harsh "craaaak," which sends all nearby birds scurrying away.

In 1992, the population of Caspian Terns at Lost Lake increased from two nesting pairs to four nesting pairs. Then, in 1993, the number mushroomed to an amazing 37 birds on May 30. Many of these appeared to be nesting, and I later observed several young on the island. The number increased again in 1994, with a high of 45 birds. I did not find any Caspian Terns at Scope Lake any of these years.

What makes Lost Lake so appealing to Caspian Terns, and how many birds can the lake support? Obviously, the lake must be well stocked with small fish, since it supports many other birds that also eat fish. Several cormorants nest on the island, as well as over 100 Common Terns. The main feature of the lake is the island on which all of these birds nest. It is about 100 yards long and only a few feet wide, and is mostly bare, especially in early summer, when nesting begins. A dike running through the lake allows people to observe the birds on the island without disturbing them.

Caspian Terns near Taber Photo: Lloyd Bennett

The Atlas of Breeding Birds of Alberta (1992) reported only one nesting colony of Caspian Terns in southern Alberta, at Lake Newell, plus the pair on Lost Lake, with various other sightings in the general area. The traditional breeding area has been at Lake Athabasca in northeast Alberta.

Lost Lake can be reached by taking Secondary Highway 526 north of Vauxhall and heading west for a few miles. The island is accessed by taking the dirt road on the west side of the canal that leads out of the lake. There is a large stone with a plaque marking the entrance.

Any birder travelling in southern Alberta should plan on stopping at Lost Lake, since a very surprising number of unusual birds have been found here. Besides Caspian Terns, there have been a Cattle Egret, White-faced Ibises, Eurasian Wigeon, Arctic Terns, Hudsonian Godwits and a Tundra Swan, which spent the entire summer of 1993 at the lake. And who knows, maybe even a Garganey will show up here one day.

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Lloyd Bennett is a past president and member of the Lethbridge Naturalists' Society

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Alberta

Cardinal River Coals

Since Alberta Environmental Protection issued the final "Terms of Reference for the Proposed Cheviot Mine Development Environmental Impact Assessment," the proponent has hired several consultants to address the issues that were identified in this document. In mid-June, representatives from several environmental groups, including FAN, were taken on a site inspection by Cheviot Mine personnel. A spokesman for the company indicated that Cheviot Mines is still on schedule to submit its Environmental Impact Assessment to Alberta Environmental Protection, the Government of Canada and the Alberta Energy and Utilities Board in early 1996. Formal review of the project will occur during 1996, and, if approval for the project is granted, construction will begin in 1997.

In March, Cheviot sent out a questionnaire to individuals and groups who have expressed an interest in the project. The questions dealt with assessing the importance of factors related to rail, power and road corridor design, plant site location, and mine and reclamation planning. Factors consistently rated of highest importance were protection of water resources, protection of public health and safety, and consideration of wildlife and habitat.

Logging on Private Land

This remains an active issue, and the context has now spread to include the logging on lands administered under grazing leases by Public Lands. Often the logging is undertaken under the aegis of "range improvement." The present licences permit the cutting of conifers that are not part of the range encroachment problem. Historically, these trees were excluded from range improvement activities, but they have suddenly become a valuable resource. In addition, some instances of possible "poaching" of timber from Crown lands in the foothills have been identified and are under investigation.

Castle Wildlands

The Federation of Alberta Naturalists participated in Natural Resources Conservation Board Hearings in 1993 dealing with a major resort development at Westcastle proposed by Vacation Alberta Corporation. This proposal included a ski hill expansion, golf course, hotel facility and condominium project. The NRCB approved the proposal with the provision that a 800 square kilometer Wildland Recreation Area be protected before the proposed development began.

The Alberta government approved this decision in December 1994 and appointed a committee of stakeholders to determine the boundaries and land uses within the protected area. This group, the Castle River Consultation Group (CRCG), was to report back to the Minister of Environmental Protection by June 15, 1995. During this process, four members of the committee representing forestry, off-road vehicle users, equestrian users and one of the agriculture representatives, left the CRCG and sucessfully lobbied the Minister to disband the group. In May 1995, Minister Ty Lund not only scrapped the group, but also reversed its approval of the NRCB decision, negating the hundreds of hours that volunteers and their organizations had put into this process.

Pipelines

Foothills Pipelines has recently obtained approval from the National Energy Board (NEB) to construct a gas line from Princess to Wild Horse in southern Alberta to connect with an existing line to Caspar, Wyoming. In its decision, the NEB included several requirements for vegetation and wildlife studies that must be completed prior to construction. The entire project has currently been postponed until at least 1996, presumably because of low gas prices.

Express Pipelines, in association with TransCanada Pipelines, has applied to the NEB to construct a crude oil pipeline from Hardisty, Alberta to Wild Horse, Alberta. From Princess to Wild Horse, this pipeline would parallel the natural gas pipeline proposed by Foothills Pipelines and share a common right-of-way. This application is awaiting the development of ''Requests for Information'' concerning the pipeline and may go to hearings in the fall. The major concerns with this project relate to possible interference with wildlife and the plans for revegetation.

The Express Pipelines application has set a precedent in the area of jurisdiction relating to pipeline construction. In the past, the National Energy Board has not concerned itself with the construction and routing of pipelines built entirely within one province, even if a pipeline connected with one which crossed provincial and/or international boundaries. Such activity was viewed as solely within provincial jurisdiction. The implications of this precedent relate to the environmental regulations that may be brought to bear on the project. Therefore, the process will be monitored closely to see if it is desirable from the perspective of a proper environmental evaluation.

Issues

Special Places 2000

In the previous issue of the *Alberta Naturalist*, a number of deficiencies were identified in the Special Places 2000 policy as it was adopted by the Alberta Government. Immediately following the proclaiming of this policy, the Federation of Alberta Naturalists, the Alberta Wilderness Association, the Canadian Parks and Wilderness Society - Alberta and the World Wildlife Fund announced a boycott of the process, including a refusal to place representatives on the Provincial Coordinating Committee or on the various Local Advisory Committees that may be formed. The major flaw with the new, watered-down policy is that it cannot ensure the protection of Special Places from industrial development. In fact, under the new policy, economic development becomes one of the cornerstones of Special Places 2000.

In early April, the World Wildlife Fund issued Alberta an "F" on its Endangered Spaces report card, the only "F" ever issued in the history of this program. This rating was mainly due to the inadequacy of the Special Places 2000 policy; the failure of the government to take any steps to protect new sites over the past 18 months; and the action of the Government of Alberta to alter the boundaries of Dinosaur Provincial Park, a World Heritage Site, in order to allow for oil and gas exploration.

The recent collapse of the Castle River Consultation Group process is a clear indication of the way in which these government appointed committees will operate: any local objection will function as a full scale veto. No mandate has been given to the Provincial Coordinating Committee to use scientific criteria to determine what gaps exist in our network of protected areas, what areas might fill those gaps or how large those areas might have to be.

In view of the lack of protection that will be accorded areas under nomination, the environmental groups also felt that it would no longer be useful to devote time to the Eastern Slopes Environment and Energy Committee. This committee had as its objective the identification of areas suited for nomination for protection from industrial development.

On June 7, 1995, Alberta Environmental Protection distributed a news release whereby the Minister, Ty Lund, announced that he will seek to amend the Willmore Wilderness Park legislation in the fall sitting of the legislature. Amendments to be introduced will specifically exclude industrial activities such as oil and gas development, mining and logging within the boundaries of Willmore Wilderness Park. The release states, ''Amending the legislation further strengthens the government's commitment to maintaining the area in a natural state, and reconfirms the government's commitment to the Special Places Program."

However, as was the case with the Special Places 2000 Policy, there can be a vast difference between the promises and the final delivered product. Further, the proposed legislation does not address either commercial development or off-road vehicle use, which have been long-standing issues for the area.

In mid-June, the World Wildlife Fund sent its Alberta Regional Director for the Endangered Spaces Campaign to the Provincial Coordinating Committee's inaugural meeting. WWF stated that its director was attending this meeting as an observer and the group's attendance should not be interpreted as participation in or endorsement of the Special Places 2000 implementation process. WWF's president, Monte Hummel, in a letter to the other groups in the boycott, indicated that after the meeting World Wildlife Fund would "revisit our strategy, including our participation in the coalition."

FAN, along with the Alberta Wilderness Association and the Canadian Parks and Widerness Society, continues to boycott the current Special Places 2000 process. These groups have recently been joined in this boycott by several other environmental groups including the Calgary Field Naturalists, Grassland Naturalists, the Alberta Forest Coalition, Albertans for Environmentally Responsible Tourism, Sierra Club of Western Canada, Castle-Crown Wilderness Association, the Western Canada Wilderness Coalition, the Alliance for Public Wildlife, Friends of the North and Friends of the Athabasca Society.

Sunshine Ski Development

The federal environmental assessment panel reviewing the proposed development of additional skiing facilities at Sunshine Village, Banff National Park released its Issues Discussion Paper in early June. This paper provides an outline of how the panel intends to conduct its review, a preliminary statement of the issues the panel believes must be addressed, an outline of the types of issues the panel considers important and the reasons why, and an outline of scoping workshops to be held in mid-September. Written comments on the document should be received by the panel no later than September 1, 1995.

Coyote Lake Conservation Area

FAN Members Honoured by Nature Conservancy

Pat Clayton

Eric and Doris Hopkins' commitment to natural ecosystems and their love of nature predates their discovery and protection of the hidden treasure called Coyote Lake. The Hopkins have been members of the Federation of Alberta Naturalists since 1971 and long-term members of the Edmonton Natural History Club. They are always ready to assist with manning a display booth, lead a field trip or take part in a species count. Now they are opening their land on Coyote Lake to be part of Alberta's Watchable Wildlife program and the Canadian Nature Conservancy's Great Plains Project.

This dedicated couple was recently honoured by the Nature Conservancy at a press conference announcing the start of the Great Plains Project. Coyote Lake, part privately-owned by the Hopkins, part Crown Land Natural Area and part purchased by Nature Conservancy funds, is the project's cornerstone. The Hopkins donated their house and 129 ha wilderness retreat to the Nature Conservancy to complete the ring of protection around the lake.

The Coyote Lake Conservation Area is 40 km west of Leduc. Of the area's 388 ha, 55 ha is lake. The property is in the transition zone between boreal forest and aspen parkland, and a wide range of plant, bird and animal species call its varied habitats home. Species counts and studies show 22 mammals, 266 vascular plants (including 5 orchids) and 154 birds, including 46 species of waterfowl.

It is the quiet determination, enthusiasm and dedication to what they hold dear that has enabled the Hopkins to complete the private conservancy of this wilderness area. It is a fitting tribute to them that Coyote Lake is the first of ten Great Plains projects by the Nature Conservancy in Alberta. Its preservation is a fine example of the cooperative approach to conservation.

Eric and Doris Hopkins at Coyote Lake.

Photo: Ron Welch

Pat Clayton is a director of FAN and member of the Edmonton Natural History Club.

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Range Extension of White-tailed Deer

R. S. Gainer

The range for white-tailed deer *(Odocoileus virginianus)* in northwestern Canada, as shown in Wishart (1984), (Fig. 1), extends much further north than that given in Burt and Grossenheider (1976), which indicates a species expansion north. Wishart includes some occasional sightings even further north of his range boundaries; however, my recent personal experience is of regular observations and reports of this species further north and west of these occasional sightings. It appears as though whitetails are still steadily expanding their range.

In the Fort Vermilion area where I lived from 1980-86, I observed both species of deer indigenous to Alberta. Mule deer *(Odocoileus hemionus),* which I observed only occasionally, were associated with the sand hills along river banks, whereas the whitetails were more often found in alfalfa fields surrounded by aspen woodlands. The most memorable fields were at Lambert Point, 15 km ENE of Fort Vermilion; Doug Quick's, 30 km NNE; and Prairie Point, 40 km WNW. Looking at Webb's (1967) density map of whitetails for the province, Prairie Point rated the third highest of four density categories at that time. My experience flying over the area in the evening was that alfalfa fields approximately 50 ha in size, all surrounded by many kilometers of untouched aspen woodland, would often have 50-60 deer in them.

I have visited the South Mackenzie regularly since 1970, and lived there from 1986-88. I never observed nor heard reports of mule deer in this area, but whitetails were definitely present. For instance, I observed whitetails in several locations in the Fort Smith area. As well, Renewable Resource Officers of the Government of the Northwest Territories (GNWT) consider whitetails to have become established along the south shore of Great Slave Lake from Hook Lake east of the Slave River near Fort Resolution, west to Pine Point, Hay River and Fort Simpson. Scotter (1974) reported several observations just south of Fort Simpson going back to the 1950s, and Webb (1967) recorded observations almost to Hay River. GNWT Renewable Resource Officers have reports of whitetails swimming the Mackenzie River and being killed near Fort Providence, and the South Mackenzie has a limited hunting season on the species.

Whitetails have also been observed during surveys further north near the Mackenzie Bison Sanctuary. There have even been reports of the animals in the Yellowknife area. Rainer Semsch also informs me that he has seen them swimming the Slave River south of Fitzgerald, which indicates they also occupy the Canadian Shield to some extent. People in Fort Chipweyan tell me that whitetails are occasionally seen on the north shore of Lake Athabasca, on the east banks of the Rocher and Slave Rivers (the Canadian Shield sides), but not nearly as

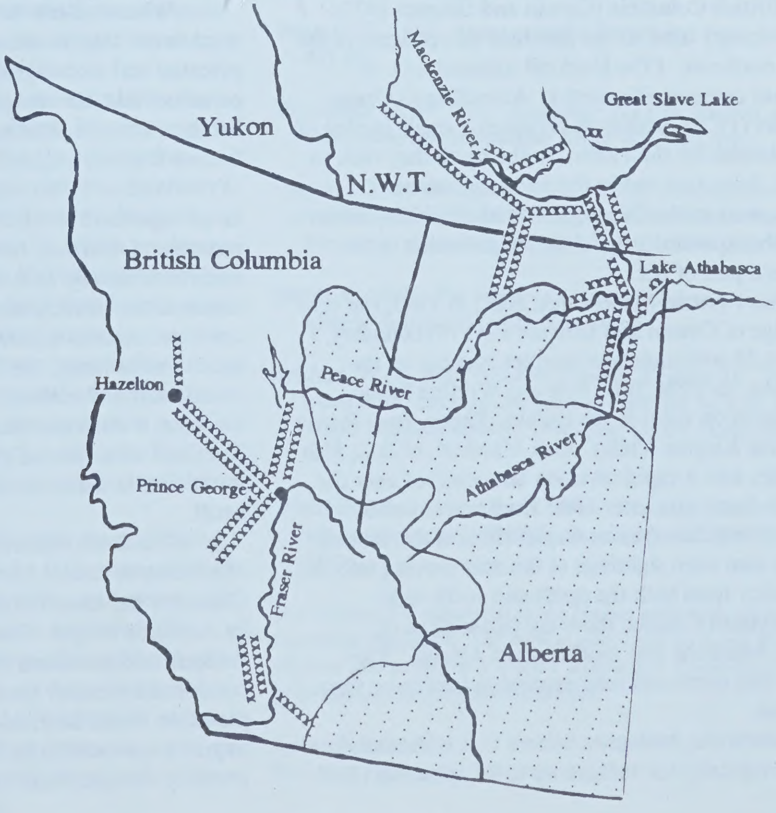

Fig. 1: Range extension of white-tailed deer in western Canada. Stippled area is an approximation of Wishart's (1984) distribution of white-tailed deer. Cross hatches show range extensions.

frequently as along the south shore of the lake or the Athabasca River south to Fort McMurray. Otto Hohn reported their tracks near Uranium City during his visit there in 1955.

Staff of Wood Buffalo National Park (WBNP) (1983) consider the first appearance of whitetails in that area to have occurred in the 1960s, but because of a lack of aerial surveys there has been no information on their abundance. The first recorded observation was by Kuyt (1966), who, a few years later, thought the deer numbers were increasing (Kuyt 1971). Long-term residents Ray Steed and James Darkes tell me that whitetails were already being hunted during the 1950s in the Fitzgerald area. Lawrence Yanik, who had a cafe there at the time, included deer meat in his menus. Steed, the highway foreman for the road network in WBNP, says that white-tailed deer were especially common near Carlson's Landing, where locals depended on them as a meat source. Darkes thinks that there were more in those days than today.

Mule deer are rarely seen in northern Alberta and the Great Slave region. Soper (1945) first recognized their appearance in WBNP in 1922, and around Great Slave Lake in 1940. Seton (1911) reported their presence in the Brule Point area 100 km west of Fort McMurray and heard of their being shot in the Fort McKay area. Reports from WBNP (1983) indicate that their population had much decreased since Soper's observations, and that by 1950 they had become rare.

In British Columbia (Cowan and Guiguet 1973), mule deer occupy most of the province except areas of the north and northeast. (The blacktail subspecies *O. h. columbianus* occupies the coast.) According to Cowan and Guiguet (1973), whitetails occupied a small portion of British Columbia by the 1970s. In the north they were in the Fort St. John area and in the south the eastern Kootenays, west to the Okanagan. Wishart (1984) shows a substantially expanded map of their distribution in the southwestern part of B.C.

When I visited Mabel Lake, B.C., in 1993, the very western edge of Cowan and Guiguet's (1973) boundary, I saw at least 25 whitetails one summer evening on the airstrip grass. In 1994, B.C. Fish and Wildlife had a hunting season on them in the Bulkley Valley, from Prince George to the Kispiox Valley. Rick Marshall, of B.C. Fish and Wildlife, says a rapid invasion has occurred over the last three to four years, over 1000 km further west of Wishart's (1984) distribution map of them at this latitude. There have also been sightings of the deer moving into the Caribou valley from both the north and south ends.

In western Canada, there are two sources of whitetails: Manitoba and southwestern Alberta. The animals in this north and west expansion may come from both sources.

In Manitoba, biologists believe that white-tailed deer were originally not indigenous to the province (Bird 1961). Seton, in Webb (1967), wrote in 1909 that whitetails "were unknown in the province until about 30 years ago, since then they have greatly increased following the settlers; now they are found wherever there are settlements adjoining the woods." Shoesmith (1976) and Bird (1961) both credit the habitat change associated with land clearing and cultivation with the increase in whitetails, but don't explain how this is related to the concurrent decrease or even disappearance of mule deer.

In Alberta, however, white-tailed deer apparently are indigenous to the south. Webb (1967) documents records of both species in the province from earliest recorded observations. In his account, E. Umfreville, at a Fort north of Lloydminister, wrote in 1784-87, "there are two kinds of jumping deer." Alexander Henry recorded that whitetails were killed east of Edmonton in 1810 and west of Rocky Mountain House in 1811. Douglas, in 1827, reported whitetails west of Rocky Mountain House close to the headwaters of the North Saskatchewan River, and Dr. Hector, with the Palliser Expedition in 1863, reported, "the Virginian deer is very abundant in this District" (west of Calgary).

Webb (1967) illustrated the expansion of whitetails in Alberta over the past 200 years with six maps. Surveyor reports placed mule deer in the Peace country by 1910 and a general breakthrough by whitetails into the area about 1940, 20 years after the first rush of settlement. Again, as in WBNP and Manitoba, the appearance of whitetails is associated with the disappearance of mule deer.

Whitetails are described as highly opportunistic weed eaters that, because of their high reproductive potential and mobility, are well designed to rapidly disperse and take advantage of successional changes in habitat. They respond positively to the new growth that follows fire and logging.

Wishart (1984) suggests that, in general, their recent range expansion in Alberta and British Columbia is a response to relatively mild weather (winters), new habitat made available by human settlement, the absence of ungulate competition and scarcity of predators. Their continued success depends on how this situation is managed. For instance, the clearing of land (especially aspen woodlands) and cultivation of tame crops (especially legumes) is most beneficial if the clearings are not large. The flush of deciduous growth following logging and forest fires is much more beneficial if affected areas are small.

The South Mackenzie area is hundreds to thousands of kilometers distant from farmland. Western British Columbia has discontinuous patches of farmland separated by mountain ranges. Forest fires have, if anything, been reduced, and predation has probably increased (wolf control and predator bounties are no more; in WBNP, predation would be much greater than in the south). The ungulate competition in the north and British Columbia has probably changed little in recent times. At first this does not appear to be much in agreement with Wishart's ideas, except as regards the absence of some of the really brutal winters. Webb (1967) considered that "the year 1903 is taken as the end of the universal cold spell." The late 1800s appear to have had many especially cold winters in a row. Wishart (1984) also recognized a warming trend through the last half of this century.

My experience with old-timers in the north is that they too believe that the earlier part of this century was much colder than recent times. It is hard to conceive, however, of a winter in Great Slave Lake area being milder than a winter in southern Alberta, which many deer are unable to survive, although snow depth and exposure to wind are probably more critical than the actual cold. Rainer Semsch points out how little we know of winter biology in the north because deer, or their tracks, are rarely seen there in the winter.

Even though these areas of the north and British Columbia do not have the land clearing and cultivation that areas to the south in Alberta have, they do have patches where trees have been cleared by timber, mining, oil and gas activities, and forest fires. There are also areas of seismic, survey and mining operations. As a pilot in the north I can attest to the attraction deer have for airstrips in the bush. Connecting these open areas are "cut lines" for communication corridors, roads, trails, power and transmission lines. A component of virtually every land reclamation project has been the planting of a "forestry mix" consisting of several species of tame grasses and legumes. What this has created is essentially an enormous and continuous artificial edge effect, the habitat that deer are precisely adapted to (Wishart 1984).

It is interesting that biologists have stated that the initial colonization of Manitoba, the Peace River country and WBNP was by mule deer, and that the subsequent follow-up by whitetails was associated with the mule deer's decline or disappearance. Geist (1990) credits this to the hybridization of mule deer and whitetails, which produces an animal unfit for survival. He says this occurs almost entirely in wooded, not open areas. Both deer species may be able to exist together, but as the local hunters learn how easy mule deer are to hunt, there is more opportunity for the more elusive whitetail bucks to expand and hybridize with mule deer females (resulting in lost mule deer genetic material). Since Manitoba has made changes to its hunting laws regarding mule deer bucks, mule deer have started to come back.

Whatever the explanation, whitetails are continuing their remarkable expansion. It is likely, if they haven't already done so in some locations, that they will soon reach the treeline. Even now their range overlaps with several populations of woodland caribou *(Rangifer rangifer caribou)* in British Columbia and the southern Mackenzie District, and perhaps two populations of barrenland caribou *(R. r. groenlandicus):* in the Slave River lowlands, especially east of Fort Resolution (the Beverly herd) and in the Yellowknife area (the Bathurst herd).

Luckily, the meningeal worm has not been associated with this recent expansion group of whitetails. The whitetails from Manitoba east carry the meningeal worm, which devastates other ungulate species whose range they overlap. The lack of meningeal worm in the northern whitetails suggests the source of the northwest expansion may be from southwestern Alberta, rather than from Manitoba.

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Bob Gainer is a naturalist in the Hanna area with a long time interest in the north. The author would like to thank W.D. Wishart and members of GNWT Renewable Resources for their generous assistance with his article.

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Wood Duck Sighting

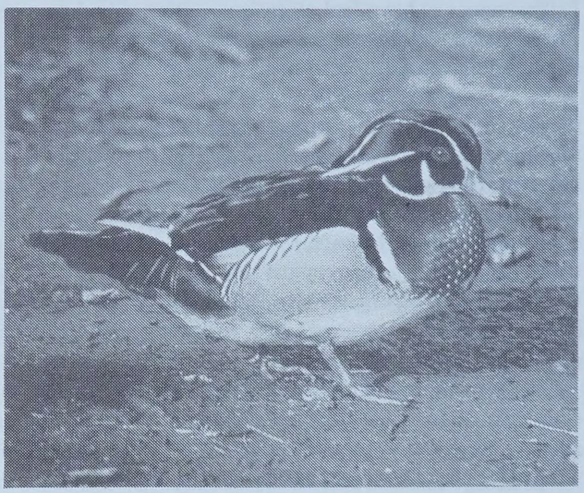
Jim Lange

On the weekend of May 27 and 28, 1995, I was conducting a bird census for the Federation of Alberta Naturalists May Species Count with the assistance of the members of Edmonton Bird Club. The area being covered was Black Bear Provincial Grazing Reserve, Bolloque Lake and ForFar Recreation Park, all located on the edge of the mixed wood boreal forest. The area is 130 km NNE of Edmonton, approximately 35 km southwest of Athabasca.

On the morning of May 28th, I met my group at ForFar Park at 8:00 hr to start the second day's birding. When I arrived, one of the group (Debbie Goloma) indicated she had sighted a Wood Duck. As this is not a bird of the region, the group decided to try and find it. The bird was not located in the morning; however, upon returning at 16:30 hr the same day to do another check, a female Wood Duck appeared .

The habitat was a small beaver pond in the boreal forest surrounded by mature aspen and white spruce with plenty of small, dead snags sticking out of the water. The pond had no outflow as the water level is maintained by a beaver dam.

The duck that landed was about the size of a teal with rather a blue-gray colour to the back. The wings had small, dark blue specula on the trailing edge. The head and neck were also this blue-gray colour. A very prominent white eye-ring, slightly teardrop-shaped towards the back, was evident. The head had a very prominent, smooth crest which gave the bird the appearance of having a hood. Unfortunately, I was unable to see the breast of the bird as it only stayed for less than a minute before taking off again. Other birds on the lake at the time were Blue-winged and Green-winged Teal, Lesser Scaup, Ring-necked Duck, Bufflehead, Common Goldeneye and Mallard.



Wood Duck Photo: Lloyd Bennett

Alberta is at the northern limits of the Wood Duck's range, so the species is seen only sporadically, most commonly in southern Alberta. On May 14, 1995, I observed a female Hooded Merganser on the same pond. This species, like the Wood Duck, is a tree-nester seen only occasionally in the province.

Jim Lange is a well-known Edmonton naturalist and birder.

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Native Plant Source List

The Alberta Native Plant Council publishes the Native Plant Source List yearly out of concern for maintaining the biological diversity in the province. The Council supports and promotes the use of native Alberta plants for environmental restorations and for landscape and gardening use where appropriate.

In the 1995 issue is a feature article, ''Guidelines for the Collection and Use of Native Plants.'' The guidelines are designed to help individuals choose the type and source of plant material appropriate to particular needs and retain the goal of preservation of native ecosystems and individual species. There are general guidelines applicable to all users as well as notes for growers, sellers, landscapers and reclamationists. Also included is a section for biology students and researchers that asks the important questions, ''Will collecting this plant contribute to educational or scientific advancement," and "what impact will removing this plant have on the population?''

Forty suppliers from across Canada are listed. The species supplier cross reference, containing over 200 species, is divided into grasses, sedges and rushes, wildflowers and trees, shrubs, vines and ground covers. Other services provided in the list are suppliers of native prairie seed harvesting equipment, custom growing, custom harvesting, custom cleaning and seed testing.

The list is available for $4.00 from the **Alberta Native Plant Council, Garneau P.O. Box 52099, Edmonton, Alberta T5G 2T5.**

Summer Student at Wagner

Natasha Klingsh

It's June 17, 4:30 a.m., and I am dragging myself out of bed to become breakfast for the bloodthirstiest mosquitoes I have ever met. What madness has driven me to this? Is it money? Insanity? Neither. I am the new summer student at the Wagner Natural Area.

The Wagner Natural Area is located on Hwy 16X between Spruce Grove and Edmonton. Its special features include marl ponds, spring fens and 15 species of orchids. I spend most of my time on site, working on natural history projects and talking to visitors.

In late June, I did the Breeding Bird Survey. I had to be up by 4:30 a.m. to be at the site by sunrise. I walked through the area, counting all the birds I heard and saw. Some parts of the aspen forest would become a symphony of sound: trills, warbles, squeaks, and squawks echoed through the air. The Red-eyed Vireo's bubbly song would come to me from all sides. ''Here I am! Look at me! Here I am!'' I often suspect they are the blondes of the bird world. The Tennessee Warbler sounds as though it has an identity crisis; it isn't sure if it should chip, warble or trill, so it does all three. A Rose-breasted Grosbeak's song is usually described as ''a robin that has taken singing lessons.'' This doesn't do justice to the melodious music coming from this bird. Everytime I hear it, I am bewitched by its beauty.

Listening to birds is easy. It is a passive process where the birder stands still and the birds sing around him. Seeing the birds is another matter. It is an active process where the birder creeps around trees, over logs and through bushes while the birds fly away. I have personally experienced this many times. Occasionally, a bird has helped me out by perching on a branch in full view. Then it would wait patiently while I fumbled through the field guides to identify it. I had this luck with a Savannah Sparrow. It tirelessly repeated its song while giving me this look: ''I'm only doing this once, so you'd better remember it!''

Needless to say, my job at Wagner is an unusual one. The hours are unconventional, but getting up early is a small price to pay to hear the birds.

Natasha Klingsh will be a student at the University of Alberta and hopes to get a degree in Environmental Science.

Author's Address:
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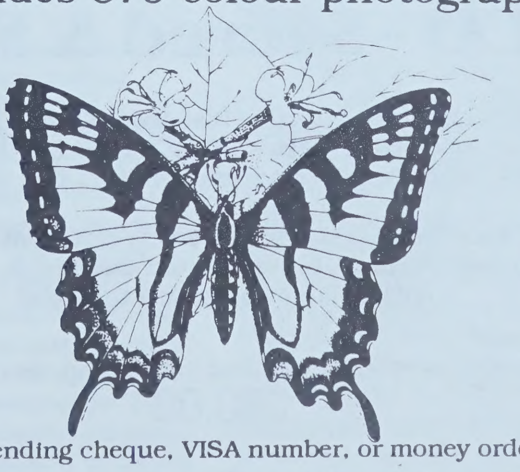

Please Note: Books will be mailed out in July.

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Federation of Alberta Naturalists, Box 1472, Edmonton, AB. T5J 2N5

1995 Emerald Winners

Eleven individuals, businesses and institutions were honoured June 7th by the Alberta Foundation for Environmental Excellence as recipients of the Fourth Annual Alberta Emerald Awards for their outstanding commitment to preserving, protecting and enhancing our environment. Award recipients were chosen from 136 nominees from across the province.

The winners were as follows:

Mountain Bluebird Trails won the **Award for Community Group** for its efforts over the past 20 years to establish and maintain a network of nest boxes throughout southern Alberta to encourage the repopulation of the indigenous Mountain Bluebird.

John O'Mahony of McLennan, Alberta was presented the **Individual Commitment Award** for the development of the Winagami Conservation Area. Mr. O'Mahony created the conservation area by persuading the Alberta government to lease 870 acres adjacent to 30 acres of property he purchased to protect natural habitats.

The Environmental Resource Centre in Edmonton received the **Education Award** for its program Destination Conservation, which helps schools improve their energy, water and waste management practices.

The Association of Professional Engineers, Geologists and Geophysicists of Alberta (APEGGA) received the **Award for Not-for-Profit Organizations** for its environmental practice guidelines, which educate, provide guidance and encourage members to be proactive in the protection and stewardship of the environment.

RDTV, located in Red Deer, received the **Media Award** for its weekly feature Earthwatch, which profiles people who make significant contributions to the environment. The program has become so popular that RDTV is syndicating it across Canada.

Dr. Steve Hrudey, from the University of Alberta, received the **Award for Research Advancements** for his work as the Eco-Research Chair in Environmental Risk Management. Dr. Hrudey's influence and work has resulted in a more informed decision-making process for environmental projects.

Strathcona County and Alberta Environmental Protection's Education Branch shared the Emerald **Award for Government Institutions.** Strathcona County has been supporting its citizens, community groups, employees and the development industry in stewardship, education, land use planning and land conservancy. Alberta Environmental Protections's Education Branch was recognized for its educational programs, which have become a model for other government agencies, industry and environmental groups.

Dr. Bonnie Kaplan, of the Alberta Children's Hospital in Calgary, was awarded the Emerald **Award for Corporate or Institutional Leadership** for her consistent and exhaustive efforts to maintain a high level of environmental awareness among 1,200 hospital staff, which has resulted in the diversion of tons of material from local landfills.

A.S.H. - Autonomous and Sustainable Housing Inc. received the Emerald **Award for Small Business** for its demonstration home/office, which preserves the integrity of air, land and water both inside and out, using state-of-the-art concepts, features and products.

Hotel Macdonald in Edmonton was the recipient of the Emerald **Award for Large Business** for its Environmental Green Plan, through which it has reduced landfill waste by 50 percent and paper use by 20 percent.

BUFFALO - Sacred & Sacrificed

In *BUFFALO-Sacred & Sacrificed*, popular historian Grant MacEwan has captured the efforts of early conservationists James McKay, Charles Alloway, Sam Bedson, Frank Oliver and Michel Pablo to preserve and protect this monarch of the plains.

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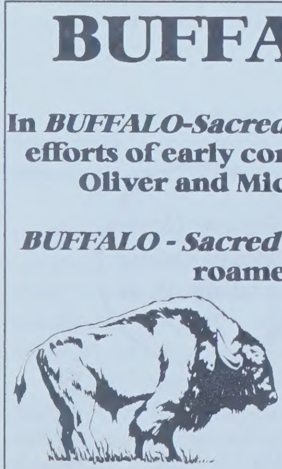

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Sighting of Greater Scaup

Mary E. Quapp

On about the first of May this year, I sighted three unusual birds swimming in our dugout. My curiosity was aroused so I consulted *The Atlas of Breeding Birds of Alberta* (1992), *The Audubon Field Guide to North American Birds* (1977), as well as *The Birds of Alberta* (1976), and confirmed to my satisfaction that one of the birds I saw was a male Greater Scaup. The bird had bright yellow eyes, a black head with clearly seen, iridescent green reflections, a blue beak and white midsection. It was the only one of its kind until about 30 hours later when it was joined briefly by two more Greater Scaup. When I came out with field glasses to view the three, all the scaup flew off and have not been seen since.

Two other birds sighted with the lone scaup were a pair of Bufflehead as per the above references. They flew away a day later.

According to *The Birds of Alberta* (1976), occasional sightings of Greater Scaup have been made in Alberta over the years. *The Atlas of Breeding Birds of Alberta* (1992) notes it is an uncommon migrant over the province.

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Greater Scaup Photo: Dan Wood

Mary Quapp lives on a farm in the Silver Valley area and has had a long-time interest in the out-of-doors.

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Great Northern Forest - A Review

Great Northern Forest is a 48 minute film co-produced by Karvonen Films Ltd. and the National Film Board, and directed by Joseph Viszmeg.

The film, which might well have been called "Creatures of the Northern Forest," features inspired cinematography. The camera of Doug Steele and Arthur Karvonen captures the spirit of many of the boreal forest's mammals and birds through the seasons. We see a red fox gingerly picking its way on top of the snow; wolves and ravens at a winter kill; and beaver kits warm in their den. The spring brings new life to the forest. The birds: owls, hawks, warblers and Sandhill Cranes are seen with their young. There are inquisitive, playful black bear cubs and a spirited pair of young moose. The young grow; summer wanes into fall; and winter is upon the forest again.

The only complaint that can be made against the cinematography is that the editing is sometimes choppy. We become engrossed in a scene, and suddenly we are into another.

The film's sound production is excellent. In conveying bird calls and songs, the howls of wolves and other forest sounds, the film gives identity to the northern forest. The music, composed by Roger Deegan, adds character and charm to the film.

Perhaps the weakest aspect of *Great Northern Forest* is its narration, by Elan Gibson. The narrator is beleaguered by a rather boring script, but she increases the problem with a delivery that is blurred and close to monotone. Compare this narration with that by Barry Morse in *The Landform Series: The Boreal Forest,* produced by ACCESS Television.

At the end of the film is a very short segment showing how the northern forest is presently being threatened by human intervention, particularly the oil and logging industries. Global warming is mentioned as a major threat, but with very little added information. Out of respect for this great forest, the film makers should have spent more time exploring these dangers to the forest, the enormous impact they are having and what must be done to save this ecosystem.

R. Edrea Daniel

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Announcements

Nature Bats Last: Precipice Theatres's Northern Alberta Summer Tour

Nature Bats Last is about Baseball...Birds...and the Boreal Forest. The Passerine family is feeling the pressures of living in modern times, raising a child under the shadow of economic uncertainty. Together the family embarks on a wonderful adventure in learning, when it travels south for a family vacation.

Precipice Theatre's *Nature Bats Last* investigates the issues forcing the decline of Neotropical Migrants (NTM) and looks at what many Albertans (researchers, educators, community groups, concerned individuals) are doing to ensure that the song of the songbird will never be silenced. It is an exciting environmental theatre exploration (using colourful costumes, props, mask, music and dance) that is being performed in outdoor fields and community baseball diamonds.

Nature Bats Last is touring Alberta this summer beginning in Banff on June 3rd and performing until the middle of August. Over the course of the summer, approximately 40 performances of the play will be shown in and around boreal forest communities in the province. When possible the primary mode of transportation for the tour will be bicycle.

Contacts: *Roger Cavadini or Tammy Vineberg, Precipice Theatre Society, Banff, Alberta. Phone: (403) 762-8113 Fax: (403) 762-0506. E-mail: pts@web.apc.org.*

The Canadian Environmental Assessment Act

The Canadian Environmental Assessment Act became law January 19, 1995. A comprehensive education manual, developed by the Canadian Environmental Assessment Agency, explains when and how the Act applies. Copies are $56.00 each.

For more information, *please call Louise Lafleche at (819) 953-4128. You can fax your order to (819) 994-1469 or mail it with your payment to: Canadian Environmental Assessment Agency, Education and Compliance, 200 Sacre-Coeur Blvd., 14th floor, Hull, Quebec K1A 0H3.*

Banff Mountain Book Festival Call For Entries

The 2nd Annual Banff Mountain Book Festival is seeking entries for its international Mountain Book competition. The Festival, presented by Canadian Mountain Holidays, will be held November 1-5, 1995 at The Banff Centre.

The festival, the first of its kind in North America, is a competitive event in which entries are judged by an international jury. Awards will be given in seven categories: Grand Prize, Non-Fiction, Mountain Environment and Culture, Guide Books, Mountain Image, Banff National Park Award and, new this year, the Adventure Travel Award sponsored by Mountain Travel-Sobek.

Submissions must be in English except in the category of Mountain Images, where submissions in all languages are acceptable. The deadline for entries is August 15; five copies of each submission must be received at the festival office in Banff by August 29.

The Banff Mountain Book Festival is a celebration of mountain literature which runs just prior to and in conjunction with the Banff Festival of Mountain Films. The festival features guest speakers, readings, seminars, book launches, book signings and a mountain publisher's book fair.

Information contact: *Karen Barkley, Banff Mountain Festival, Box 1020, Station 38, Banff, Alberta TOL OCO. Tel: (403) 762-6406 Fax: (403) 762-6277.*

Ecological Areas Conference

The Canadian Council on Ecological Areas is hosting a national conference in Calgary, Alberta on November 7 and 8, 1995.

The objectives of the conference are to bring together members of business, science, education and government to clarify the essential role of protected areas in resource-based economies and to explore the challenges associated with maintaining biodiversity and ecological integrity.

For information please contact *Ms. Roby Usher, Conference Registrar, GAIA Consultants, Inc., Suite 200, 1122 - 4th Street SW, Calgary, Alberta T2R 1M1. Telephone: (404) 269--9466 Fax: (403) 269-1527.*

National Habitat Workshop 1995

The Second National Habitat Workshop will be held August 14-16, 1995 in Sackville, NB. Topics to be explored include habitat enhancement and restoration, sustainable habitat use, protective mechanisms, marine and coastal zone issues and habitat monitoring and research.

For information on registration contact *Colin MacKinnon or Randy Milton at the Canadian Wildlife Service, P.O. Box 1590, Sackville, N.B E0A 3C0. Tel: (506) 364-5044 Fax: (506) 364-5062. E-mail: amiraultd@ns.doc.ca.*

* * *

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Alberta Christmas Bird Counts 1994

Alberta Bird Checklist Project

Pine Grosbeak, female **Photo: Jim Salt**

Alberta Christmas Bird Counts 1994

Andrew Slater

It seems that every year, almost without fail, someone turns up a species that has not been reported on a Christmas Bird Count in the province before. This year, it was in Millwoods Ravine in Edmonton that a Lincoln's Sparrow was identified and duly confirmed by a member of that counts's celebrated "Swat Team."

In total, 120 species were counted in 1994, eclipsing the previous high of 117 species in 1989. The number of counts was also up, to 67, equalling the high in 1992. No likely species were missed, and many unlikely ones were found, despite the balmy temperatures at the beginning of the period being replaced by frigid ones at the end, when several counts had quite disappointing results.

If 1993 was the year of the redpoll, 1994 was the year of the Pine Grosbeak. Count after count reported abnormal numbers of these attractive winter visitors. Eventually, their total reached 5483, compared to 1894 last year, and an earlier high of 3614 in 1991.

Another species that lingered in unprecedented numbers was the Sharp-shinned Hawk. The previous total high was only 4 birds, but this year 11 were found on eight counts. Is Pine Grosbeak a favoured prey species, one has to wonder, or is it just a coincidence?

A former complete migrant that has been quietly establishing itself as a winter resident in very small numbers in the province during the last 10 years is the Common Grackle. Last year's high of 8 individuals shot up to 29, of which 28 were in Medicine Hat.

Suspicions that Snowy Owls might crash after 1993's reported lemming die-off were not borne out. The total count was second only to last year's massive invasion. Saw-Whet Owls also were located in numbers second only to last year; a result, I suspect, of the growing popularity of Christmas owling.

Ruffed Grouse, which is supposed to experience population cycles, attained a new high after a barely perceptible dip over the previous four years. Sharp-tails, however, continued a low period that has also lasted four years.

The following species also set new provincial high totals: Tundra Swan, Northern Shoveler, Ring-necked Duck, Common and Barrow's Goldeneyes, Bufflehead, Common and Red-breasted Mergansers, Merlin, Rock and Mourning Doves, Barred and Boreal Owls, Pileated Woodpecker, Gray and Steller's Jays, Black-billed Magpie, Northern Raven, Mountain Chickadee, White-breasted Nuthatch, American Dipper, European Starling, White-throated and Harris' Sparrows, House Finch and House Sparrow.

In contrast, what happened to the redpolls this year? After 1993's record total of over sixteen thousand, only 955 Commons were tallied this time, the lowest total since 1983; while in the whole province, only one Hoary was identified!

Brown Creepers were also very hard to find; their total of only 36 was the lowest for 10 years. I can't think of an answer to that one either! Short-eared Owls continue to be in the doldrums; 5 birds represents a set-back from last year's minor revival to 23. Great Gray Owls had their poorest year since 1990, and American Tree Sparrows since 1989. The highly erratic White-winged Crossbill was nearly absent again after an invasion last year, while 12 Cedar Waxwings was a typical number after 1993's phenomenal 486.

Bow/Kan, in their third year, notched up 40 species, including the only Winter Wren anywhere and a new provincial high for Dippers. Their Tundra Swan was one of two that were wintering on the Bow River. It snowed all day at Cardston, resulting in a count of only 15 species; however, the on-going expansion of Blue Jays into the most southern part of Alberta was in evidence.

Calgary added Sharp-shinned Hawk (three of them) and Mourning Dove to their all-time list, and witnessed an explosion of Blue Jays. Nine House Finches encouraged those of us who can't wait for them to take over from House Sparrows! A new count at Carstairs, which occurred on December 30, had disappointing numbers of birds due to the cold and high winds. Hope for better luck next year!

Claresholm recorded Cooper's Hawk and White-throated Sparrow for the first time and American Robin for the second. Coyote Lake, with 1476 individuals of 26 species, discovered the truth of the old adage: more counters equals more birds!

Dickson Dam achieved a good selection of waterfowl, including Trumpeter Swan (for the third time in the province), Canvasback, Redhead and American Coot. Edmonton equalled their all-time high of 57 species; White-crowned Sparrow was new and Harlequin Duck was notable, usually only being found in the southwest.

Fort McMurray found Willow Ptarmigan for the first time since 1989, and also a Brewer's Blackbird, for the second year running. It was a pleasure to receive results from Fort Smith again; part of this count is in Alberta, the rest just over the NWT border. This group also recorded Willow Ptarmigan.

With a Peregrine Falcon that was new to its count, Horseshoe Canyon found all the falcons except Kestrel! However, kinglets, waxwings and redpolls were low, and White-breasted Nuthatches, surprisingly, absent. Lethbridge turned up four new species: Tundra Swan, Red-breasted Merganser, Townsend's Solitaire and Purple Finch.

Medicine Hat experienced the best weather ever with a high of 14° C. Canada Geese were 40 percent higher than ever before, while 28 Common Grackles was, of course, an all-time provincial high. As elsewhere, waxwings, redpolls and Tree Sparrows were low. At Ponoka, House Sparrows continued to decline due to a trapping programme in the town by local naturalists. No redpolls had been seen since October!

Prairie Oasis recorded Western Grebe for the first time. This is probably the only count that is carried out wearing hard hats--at least, the section at the Sheerness Power Station cooling pond is! Rocky Mountain House found a new high of four Steller's Jays, and, here too, a big drop in redpolls.

St. Paul found a Chukar Partridge; last year there was one at St. Albert. They are presumed to be survivors of unsuccessful introductions, and so, I'm afraid, are not countable at the moment. In this, its fourth year, the Sheep River count really came of age and added a host of new species. Most notable were two Long-eared Owls and a Western Meadowlark.

The Snake's Head count experienced a very cold day, but added two new species: Common Goldeneye and Red-winged Blackbird. Wabamun Lake had a good year, finding three new species: Trumpeter Swan (third year in the province), Yellow-rumped Warbler (at a feeder, by 350 km the most northerly warbler to date) and Yellow-headed Blackbird (fourth time in the province). Also unusual were a Red-necked Grebe and four Northern Shovelers, which were recorded in the province for the fourth and eighth years respectively.

The highlight at Waterton Lakes was a Chestnut-backed Chickadee, which was coming regularly to feeders in the town. This species from B.C. has occurred three times previously on Alberta CBC's, twice at Waterton Lakes and once at Hinton. Common Loon, Barrow's Goldeneye and White-throated Sparrow were all recorded for the second time on this count. The Wildlife Reserve Count was adversely affected by a storm coming in during the day, but found an exceptional 14 Three-toed Woodpeckers.

I will end by acknowledging once again the sizable contributions of Myrna Pearman and Teresa Dolman in co-ordinating the counts in the Red Deer and Lethbridge regions, and by thanking all the count compilers for their efforts. Many invited me to phone them with any questions or comments I might have. Unfortunately, while I would love to be able to discuss the counts with everyone, financial and time constraints dictate that only the most urgent problems merit a long distance call.

Count Dates, Compilers and Participants

Alix: Dec. 18. Participants: Lorna Smith and Ida Vincett.

Banff/Canmore: Dec. 17. Compiler: Mike McIvor, Box 114, Banff, AB T0L 0C0. Participants: James Bannon, Carolyn Callaghan, Heather Dempsey, Kevin Elliot, Halle Flygare, Colin Funk, Jean Greig, Paul Greig, Joel Hagen, Mary Harding, Dolores Houb, Deb Hornsby, Doug Leighton, Myriam Leighton, Shawna Mahoney, Shelley Mardiros, Diane McIvor, Mike McIvor, Nancy Murray, Lars Pettersson, Peter Poole, Mike Potter, Mike Preston, Isabelle Schmelzer, Michael Shuster, Bob Smith, Mary Smith, Gareth Thomson, Maurice Tissandier, Lynn Vogt, Keith Webb, Cliff White, Philip Widmer, Lorraine Widmer-Carson, Gerry Wilkie, Brendan Wilson, Gustave Yaki.

Beaverlodge: Dec. 18. Compiler: Joan E. Kerr, Box 516, Beaverlodge, AB T0H 0C0. Participants: Jim Brown, Maxine Brown, Terri Brown, Carol Cassity, Marie Cliffe, Jerry Kerr, Joan Kerr, Kelly Kerr, Kelsey Kerr, Bev McLauchlan, Mary Patenaude, Andy Raniseth, Marilyn Aniseth, Jeanne Smith, Maureen Sywolds.

Berwyn: Dec. 19. Compiler: Mary Dixon, Box 928, Grimshaw, AB T0H 1W0. Participants: Eva Johnston, Jessie Kinley, Mary Dixon, Tom Dixon, Lena Williamson, Grace Lilienskold, Kathleen Meyers, Verne Purcell, Don Mills, James Mills, Birget Sorensen, Ann Sorensen, Amy Messner, Paul Messner, Morley Messner, Phyllis Lyster, Rodney Crumb, Irene Crumb, Berry Murphy, Minnie Brown, Trudi Keillor, Winnie Condrotte, Edith Lorenscheit.

Bow/Kan: Jan. 2. Compiler: Janet E. Rodgers, Box 153, Exshaw, AB T0L 2L0. Participants: Des Allen, Kevin Barker, Bruce Bembridge, Susan Blinn, Sarah Bricket, Jan Brygger, Bob and Ruth Camenzind, Dene and Jean Cooper, Gloria Cowley, Linda Davis, Patricia Donald, Mary Dumka, Di Dunlop, Matt Evans, Joan, Chris & David Ford, Dennis & Eileen Freels, Grank & Joanne Gee, Bert & Marilyn Dyck, Andre Yareau, George Halmazna, Cliff, Margo & Karen Hansen, Brian Lajeunesse, Grace Lebel, Donna MacKay, John & Lorraine Maloff, Dick & Miki Mann, Donna Joe Massie, Stella McIntyre, Marion Milne, Meg Nicks, Bente' Preshaw, Charlene Proctor, Shane, Rosie, Laura, Holly Reid, Bob & Aylene Reynolds, Janet Rodgers, Wayne, Diane, Chelcey & Mandy Scott, Hanne' Seidel, Peter Sherrington, Paul & Emily Smith, Jack Steeves, Barry Volgel, Donna & Peter Wesley, Karen Yamazaki, Eva & Kate Zidek.

Bow Summit: Dec. 31. Compiler: Mike McIvor, Box 114, Banff, AB T0L 0C0. Participants: Diane McIvor, Mike McIvor.

Buffalo Lake: Dec. 26. Co-Compilers: Carol L. Simpson, #20 Emmerson Acres, Stettler, AB T0C 2L2, Lloyd Lohr, Box 40, Stettler, AB T0C 1G0. Participants: Doreen Anders, Gary & Karen Bisang, Ozzie & Peggy Clark, Christene & Nathan Comstock, Bob & Kathy

Finley, Carol, Cherie, John & Laurie Fletcher, Gordon & Mamie Kennedy, Nellie Kerr, Cathy & Ron Komishke, Lavina Larson, Lloyd Lohr, Mike, Phillip Moad, Evelyn & Ray O'Hara, Jack Ritchie, Carol Simpson, Barb, Garnet & Glen Stark, Judy Vetricek, Don & Dorothy Wilson.

Calgary: Dec. 18. Compiler: Ian R. Halladay, 2103 Crocus Road, N.W., Calgary, AB T2L 0Z7. Participants: Daryl Addison, Des Allen, Liz Allen, Winnie Amos, Ella Arnold, Lorna Arnold, Shirley Ausmua, Mairi Babey, Frank Bailey, Anna Beckmann, Margaret Brown, Darby Buckley-Jones, Bill Campbell, Rod Chisholm, Mary Clitheroe, Nancy Cook, Sandra Cooper, Mary Coughlin, Hellen Courterell, Ruth Craig, Sheila Cox, Eileen Dann, Joyce Davis, Joe Denham, Doreen Dixon, Ted Dixon, Morag Dornain, Judith Doyle, Jean Dunn, Rodger Dunn, Ingrid Eckvedt, Gail Edwards, Brian Elder, Joyce Elphinstone, Sue Fletcher, Dick Flynn, Leona Flynn, Joyce Frank, Shirley Fraser, Ron Glass, Florence Godfrey, Joyce Goldsmith, Lorne Gould, Bob Greggs, Horst Grothman, Val Haines, Ian Halladay, C. Hansen, Art Harris, Bud Henning, Lorraine Herwig, Dorothy Hill, Shirley Hill, Cedric Hitchon, Robin Hitchon, Norm Holden, Andrew Holder, Bob Hollinshead, Sue Hollinshead, Catherine Hooker, Bill Hooker, Mary Huston, Jean Irwin, Helen Jackman, Marieke Jalink, Wim Jalink, Joanne Jamison, May Jardine, Cathy Jarrell, Linda Javeri, Marilyn Jermyn, Linda Joehnck, Kate Jones, Steve Kassai, Bev Kissinger, Ed Kissinger, Anita Kohse, Terry Korolyk, Ted Koziel, Dave Langdon, Ron Law, Ross Lein, Corinne Lofthouse, Mac Love, Don Magnusson, Chuck Malcolm, Bob Marshall, Doris Marshall, Jan Marshall, Len Marshall, Belle Mathie, Dave Matthews, Jean Matthews, Kim McCaully, Greg McDonald, John McFaul, Catherine McGlashan, Greg Meyer, Molly Milne, Claudette Monette-Brown, Jean Moore, Lorraine Moore, Sherrold Moore, Wayne Moore, Gordon Neill, Margaret Neill, Dorothy Newman, Lynn Newman, Hilda Obermeyer, Ingrid Pagankopf, Bob Pella, Aileen Pelzer, Kay Power, Mike Power, Jim Posey, Mike Preston, John Price, Don Ray, Roberta Rees, Florence Reid, Mike Rogers, Scott Rogers, Kathleen Roman, Alan Rudkin, Bob Saunders, Chip Scialea, Jan Simonson, Gwen Simpson, Penny Smith, Clarence Spicer, Tony Starlight, Mynn Steinbach, Vic Steinbach, Don Stiles, Bob Storms, Andrew Slater, Anne Taylor, Bill Taylor, Douglas Taylor, Ted Thomas, John Totino, Nicholas Totino, Richard Trahan, Bill Trigg, Merlin Trigg, Howard Troughton, Leah Truch, Tina Van Egmond, Phil Vermette, Weldon Vickers, Lynn Vogt, Rick Walcott, Jim Washbrook, Grace Webber, Walter Webber, Leon Wehmeyer, Alec Weir, Mike Whalley, Gus Yaki, Pat Young, Penny Young, Rick Young. (Members and friends, Calgary Field Naturalists' Society).

Claresholm: Dec. 18. Compiler: Grace Norgard, Box 10, Claresholm, AB T0L 0T0. Participants: Jason & Ruth Attwell, Rick & Susan Burton, Rob & Robin Chisholm, Don & Shirley Clark, Henry & Audrey Helmer, Hazel Hudson, Dorcas Kennedy, Grace Norgard, Richard Quinlan, Anita Stonehouse, Joe & Audrey Takahaski, Vaughn & Jennie Waite, Al Williams.

Coyote Lake: Dec. 27. Compiler: Doris Hopkins, R.R. #1, Warburg, AB T0C 2T0. Participants: Virginia & Don Aronyk, Barbara & Jim Beck, Don Campbell, Ross Dixon, Rosemary & Neil Durrant, Adrian Durrant, Jessie & Robert Gates, Ethel Hayes, Doris & Eric Hopkins, Debbie & Lorne Kelly Frances Losie, Sandy & Bob MacLean, Arlynn Miller, Vivian & Bruce Morden, Millie & Lu Mottl, Linda & Tom Wall.

Crestomere: Dec. 18. Participants: Nancy Mackenzie, Ruth Mumby, Art & Phyllis Walcheske.

Devon/Calmar: Dec. 26. Compiler: Darrell B. Frohlick, Box 1044, Devon, AB T0C 1E0. Participants: Ross Dickson, Ross Hodgetts, Darrell B. Frohlick, Bob Kochtubaja, Chris Cherwonick, Lisa Takats, Jen Gammon, Marke Ambard, Ben Olson, Jim Beck, Barb Beck, E. Coates, Pat Valastin, Wes Hochachka, Louis Hochachka, Stefan Junkind, Karen Mella, Stephany Proudfoot, Lorraine Williams, Mike Sullivan.

Dickson Dam: Dec. 18. Participants: Phillip & Colleen Anderson, John Henderson, Ian Richards, Jason Rogers, Joan White Calf.

Drayton Valley: Dec. 18. Compiler: Helmut Amelang, P.O. Box 6791, Drayton Valley, AB T7A 1S2. Participants: Donalda Bidulka, Peggy Ulland, Anne Sarocki, Emily Sarocki, Maria Bice, John Morgan.

Eckville: Dec. 18. Participants: Linda & Hal Lutz, Calvin & Zella Vig, Edna Wetzel, Wilfred & Catherine Wiese.

Edmonton: Dec. 18. Comiler: Fred Whiley, 12342 - 91 Street, Edmonton, AB T5B 4C5. Participants: John Acorn, Kelly Aldridge, Gary Anweiler, Rachel Amores, James Back, Lori Baryluk, Elisabeth Beaubien, Barbara Beck, James Beck, Ted Belke, Gerry Beyersbergen, Richard Biel, Josh Bilyk, Barry Birch, Brian Birch, Jean Burgess, Jim Butler, Wendy Calvert, Jean Chapman, John Chapman, Jim Christie, Donna Clandfield, Dick Clayton, Dawne Colwell, Judy Cornish, Ray.Cromie, Pat Crossley, Dave Cuthiell, Ted Cyr, Bill Daly, Carol Davie, Wendy Davis, Peter Demulder, David Dodge, Dwayne Dorland, Bruce Dunlop, Jason Duxbury, Dave Ealey, Edmunds family, Gordon Elbrond, Cam Finlay, Joy Finlay, Zdenes Fisera, Chris Fisher, Carolyn Foster, Catherine Gale, Herb Gale, Barb Gauf, Paul Goosen, Valerie Goosen, Dennis Grover, Barbara Hargrave, Brenda Hennig, Jim Henry, Mark Hewitt, Alan Hingston, Geoff Holroyd, Lisa Holtorf, Brian Hornby, Jean Horne, Linda Howitt, Susan Hunter, Blake Johnson, Derek Johnson, Rhonda Johnson, Stephan Junkind, Emily Kaldestad, Ed Karpuk, Dave Kelly, Angela Kinney, Purvis Kinney, Janos Kovacs, Doug Krystofiak, Sharron Lang, Jim Lange, Patty Lemke, Doreen Letain, Ed Letain, Phyllis Lockkett, Larry MacDonald, Jim MacGregor, June MacIvor, Monette Malley, Av Mann, Pat Mrkelevitz, Susan McDaniel, Colin McIntyre, Gerry McKeating, Doug McKellar, Rudy Melnychuck, Amylee Milke, Doris Milke, John Moore, David Nadeau, Richard Nesby, Jiri Novacs, Ben Olsen, Carla Palaschuk, Dave Palsat, Bob Parsons, Carole Patterson, Deborah Peppat, Sharon Pomeroy, Brian Ritchie, Diane Sagert, Teresa Scholer, Alf Scott, Ian Scott, June Seidel, Christine Seiler, Michawl Seiler, Warren Shaffer, Annabel Sheppard, James Shewfelt, Ruth Shewfelt, Ken Sloman, Judith Smith, Dena Stockberger, Lisa Takats, Ron Taylor, Terry Thormin, Roy Trace, Mike Undershultz, Cindy Verbeek, Dennis Verbeek, Claire Verett, Eric Wallace, Doug Whalsten, Fred Whiley, Elsie White, Maurice White, Janet Woolgar, Michael Yeomans.

Edson: Dec. 29. Compiler: Paul Marshall, Box 7318, Edson, AB T7E 1V5. Participants: Jack Adamson, Art & David Ahlf, Lawreen Ahlf & family, Diane Birkett, Tom & Lucille Booker, Margaret Bowman, Sonja & Brian Boyce, Dorothy Bradford, Don, Marilyn, John & Elaine Bright, Carol & Don Crawford, Jan Edmond, Jean Ennis, Myrna Meyer Field, Alvin Grasse, Margaret Hird, Ryan, Scott & Mavis Holroyd, Arnie Johnson & family, Chuck & Marjorie Lacy, Heather & Corinne Marshall, June & Carla McPhee, Isabell Miller, Colleen Miller, Gloria Musson, Carol Paul, Agnes Pelke, Ellen Radowitz, Margaret Sanders, Carl Schlick, James Shuel, Catherine & Kirby Smith, Lud Stordock, Max & Christine Wadley.

Eleske Shrine: Dec. 17. Compiler: Len Dueck, Box 475, High Level, AB T0H 1Z0. Participants: Len & Pat Dueck.

Elk Island: Dec. 26. Compiler: Geoff Holroyd, 4123 - 122 Street, Edmonton, AB T6J 1Z1. Participants: Peter Achuff, Elisabeth Beaubien, Jean Burgess, Wendy Calvert, Bob Carroll, Jan Carroll, Beth Cornish, Judy Cornish, Ray Cromie, Loney Dickson, Lynne Dickson, Doug Dowell, Geoff Holroyd, Brian Hornby, Jim Lange, Bob Parsons, Margo Pybus, Trevor Roper, Teresa Scholer (Edmonton Natural History Club, Friends of Elk Island Society).

Elk Point: Jan 2. Compiler: Michelle Anton, Box 487, St. Paul, AB T0A 3A0.

Erskine: Jan 2. Co-Compilers: Carol L. Simpson, #20 Emmerson Acres, Stettler, AB T0C 2L2, Lloyd Lohr, Box 40, Stettler, AB T0C 1G0. Participants: Ann & Charlie Bird, John Brennan, Allen & Bertha Clarke, Arlie & Tanya Fishbach, Floyd & Joan Graham, Orville Hanna, Eileen Hatten, Dale Jackson, Christina Kostiak, Martha & Ron Kruger, Samantha Kudras, Joan Lepard, Bea & Marvin Lohr, Laverne Lohr, Lloyd Lohr, Bill Dan & Kyle Muhlbach, Dee Ness, Evelyn O'Hara, Carol Simpson, Les Simpson, Lola Stewart, Tom Verdonk, Marlene & Saskea Walentowitz.

Evergreen: Dec. 18. Participants: Roxanne Ford, Tina Karhoffer, Rex, Graham & Taylor King, Julian Senech.

Fish Creek Park: Jan. 2. Compiler: Bill Walker, 260 Parkside Crescent S.E., Calgary, AB T2J 4J4. Participants: Mary Coughlin, Cathy McGlosher, Michael Harison, Bob Storms, Don Stiles, Bruce Harding, Mike Progiak, Howard Troughton, Phil Vermette, Diana Shepak, Penny Smith, Carol Gullerton, Aileen Pelyer, David Yaki, Gus Yaki.

Fort McMurray: Dec. 18. Compiler: Fred Kobut, 9409, 15 Saunderson Road, Fort McMurray, AB T9H 3Z5.

Fort Saskatchewan: Dec. 17. Compiler: Art Hughes, 29 Elizabeth Drive, Fort Saskatchewan, AB T8L 2M4. Participants: Frank Belyea, Glennis Belyea, Bob Carroll, Ray Cromie, Ross Dickson, Art Hughes, John Moore, Diane Murray, Bill Richards, Trevor Roper, Judy Smart, Elmer Thomas.

Fort Smith: Dec. 27. Compiler: Anne Robinson, Box 1118, Fort Smith, N.W.T. X0E 0P0.

Fort Vermilion: Dec. 17. Compiler: Wendy Carpenter, Box 291, Fort Vermilion, AB T0H 1N0.

Grande Prairie: Dec. 17. Compiler: Andy Raniseth, 10028 - 87 Avenue, Grande Prairie, AB T8V 0B4. Participants: Joan Snyder, Vince Salvo, Joan Kerr, Jeanne Smith, Doreen Cooke, Moira Sheenan, Andy Raniseth, Marilyn Raniseth, Rick Scott, Glenn Rogers, Mike Veloski, Lawrence Chandler, Tony Graham, Joyce Mann, Jack Mann, Gwen Richards, Alf Richards.

Gull Lake: Dec. 18. Participants: Mary Baker, Luce Bernard, Beatrice Burles, Vivian Busat, Frank Fraser, Gordon and Louis Galbraith, Sandy Halberg, Lorna and Don Haworth, Paul Johnston, Bill Huisman, Ken Olson, Percy & Jessie Palmer, Berry & Wendy Raymond, Alfred & Florrie Skjonsberg, Case Spelt, Stolte family, Tom Turnbull, Richard Matthews, Ruth McPhee, June Wiese, Marilee Yakunin.

Haynes: Dec. 18. Participants: Barb Sheppard, Jim, Anna, Patrick & Alyssa Robertson.

High Level: Dec. 18. Compiler: Richard Chemago, Box 870, High Level, AB T0H 1Z0. Participants: Richard Chemago, Annette Gillard,, Ken Orich, Maryanne Devies, Dave Steer, Andrew Plante, Tyer Plante, Tanya Plante, Tom Plante.

High Prairie: Jan. 2. Compiler: Luella Wood, Box 1843, High Prairie, AB T0G 1E0. Participants: Nellie, Bill & Edith Guild, Luella Wood, Marlene Fedan.

Hinton: Dec. 26. Compiler: Beth MacCallum, 110 Seabolt Drive, Hinton, AB T7V 1K2. Participants: Barry Godsalve, Andrew Godsalve, Gerry Wilde, Karen Aldred, Dave Holson, Rick Bonar, Shawn Meechum, Rocky Natnes, Norma Bonar, Ann Bronson, Doffie Reed, Neil & Wendy Anderson, Clare & Brenda Armstrong, Marg & Lloyd Stafford, Neil Simmonds, Pete Schaeffer, Tony Zimmer, Max & Gwen Kudvenecky, Mildred Luger, Bob & Mariette Lyons, Vern Truxler, Don Terris, Ernie Mazanchuk, Peter Tilley.

Horseshoe Canyon: Dec. 17. Compiler: Robert W. Storms, 184 Riverbirch Road S.E., Calgary, AB T2C 3N2. Participants: George Halmazna, Gary Clarke, Dwight Knapik, Bob Saunders, Joe Denham, Luke de Wit, Roger Dunn, Brian Elder, Mike Harrison, Al Kimberley, John Riddell, Peter Sherrington, Wayne Smith, Milt Spitzer, Bob Storms, Merril Wershler, Ray Wershler.

Jasper: Dec. 17. Compiler: Dave Pick, Box 2326, Jasper, AB T0E 1E0. Participants: Roy Richards, Ben & Cia Gadd, Jill Serton, Alan Butler, Volker Schelhas, Joe & Sheila Couture, Susan McCarthy, Dave Pick, Lorn & Norma Howard, Joe Hayes, Paulette Trottier, Tom Stobart, Frank & Gail Leong, Joyce Richards.

Kimiwan/McLennan: Jan. 2. Compiler: Louise Faulkner, P.O. Box 420, McLennan, AB T0H 2L0. Participants: Anne Brassard, Barb Christen, Eckhard Christen, Diane Deslauriers, Joel Deslauriers, Louise Faulkner, Ron Faulkner, Pauline Gervais, Irene Hoedl, Leo Labrecque, Julie Labrecque, Frank Lang, Mavis Lang, Francis Lessard, Vianney Limoges, Marriette Limoges, Alice MacMillan, Ted MacMillan, John O'Mahony, Lorene Owens, Bob Simpson, Norma Sobolewski, Anne Trotter, William Trotter, Alex Welch.

Kneehill Valley: Dec. 18. Participant: Dorothy Dickson.

Lac La Biche: Dec. 18. Compiler: Roy Middleton, Box 1435, Lac La Biche, AB T0A 2C0. Participants: Phil Cohen, Sandy Cohen, Tom Hannan, Rick Harrison, Ted Johnson, Johnathon Kuprowsky, Tom Maccagno, Roy Middleton, Doug Stewart, Jerry Sykes, Virginia Cadieux, Kent Davidson, Brian Deheer, Peter Kucher, Mel Kuprowsky, Dave Lawson, Blanche Kockhart, Annette Maccagno, Clara McArthur, Viggo Nielsen, Joe Phillips, Bill Sawchuk, Irene Scott, Gerry Steedsman, Vi Sykes, Dave Winger. Harvey Yoder.

Lacombe: Dec. 18. Participants: Jennie Abma, Dave Bott, Muriel & Herb Harriman, Bea Pierce, Sam, Joan & Joanne Susut.

Larkspur: Dec. 26. Compiler: Patricia Mackonka, Box 118, Dapp, AB T0G 0S0. Participants: Patricia Mackonka, Anastasia Martin-Stilwell.

Lethbridge: Dec. 26. Compiler: Graeme Greenlee, 2018 - 23 Avenue South, Lethbridge, AB T1K 1K6. Participants: Amber, Dawn & Lindsay Arizono, Bruce & Lloyd Bennett, Anne, Bill & William Brown, Doug Cole, Linda Cerney, Doug & Teresa Dolman, Wayne Dwornik, Don, Kristen & Pattie Ferguson, Andrew & Witek Gierulski, Graeme & Patty Greenlee, Marilyn & Victor Hafichuk, George & Berry Luco, Chris Magosse, Jennifer & Lynn Mather, Lyman Matthews, Leah Nelsen, Ken Peddie, Wendy Ponomar, Doris Rhodes, Alex, Frank & Katharine Russell, Bill Sharp, Jessica, Joyce & Paul Wilkinson, Diana & Eric Williams.

Medicine Hat: De. 18. Compiler: Dennis Baresco, Box 2513, Medicine Hat T1A 8G8. Participants: Dennis Baresco, Barb Chishom, Ron Chrisholm, Willa Clark, Dawn Dickinson, Bob Frew, Florence Havill, Annalora Horch, Phil Horch, Darcy MacNeil, Jim Marshall, Lorine Marshall, Peter Mehrer, Garry Newton, Michael O'Shea, Mark Oxamitny, Dan Schiebelbein, Mark Schiebelbein, Dana Shukster, Ivan Shukster, Charlene Skidmore, Bill Tidy, Ruth Tidy, Ben Velner, Michael Velner, Arnie Vorreiter, Dan Taylor, Joanne Taylor, Phyllis MacDonald.

Olds: Dec. 18. Participants: David & Catherine Bartlett.

Penhold: Dec. 18. Participants: Stewart & Eileen Ford, Herb & Helen Harris.

Pine Lake: Dec. 18. Participants: Minnie Cunningham, Eileen Ford, Helen Harris.

Ponoka: Dec. 18. Co-Compilers: D. Murray Mackay & Carolyn Macaulay, 5217 - 58 Avenue, Ponoka, AB T4J 1G4. Participants: Margaret & Bill Baile, Jack & Evie Burns, Stan Crooks, Mr. & Mrs. Don Graham, Mr. & Mrs. Arnold Hemsing, Fran & Harold Lamey, Olga & Frank Lind, Kathryn Love, Mildred Lyons, Carolyn & Neil Macaulay, Margaret & Murray Mackay, Mr. & Mrs. Marv. Morrow, Mr. & Mrs. Eric Osterguaard, Doreen & Bob Ross, Len & Betty Rowland, Bob Spratt, Tony Vonderberg & family, June Wieb.

Prairie Oasis: Dec. 17. Compiler: Joan F. McDonald, 91 Range Way N.W., Calgary, T3G 1H6. Participants: Joan McDonald, Malcolm McDonald.

Red Deer: Dec. 18. Compiler: Myrna Pearman, Box 127, Sylvan Lake, AB T0M 1Z0. Participants: Jerry & Marion Alderson, Ray & Freda Bertram, Jim Caddy, Hilary & Jon Eade, C.P. Fox, Jon Gutter, Dorothy Hazlett, Alice Hogan, Bruce, Elizabeth & Charles Jacobson, Keith Kline, Joan & Murray Lamb, Mike McNaughton, Grant Moir, Dorothy & Sandy Murray, Ione Napper, Teresa Neuman, Hazel Neuman, Michael O'Brien, Maxine O'Riordan, Marie Pierce, C. Price, Ian Richards, Jason Rogers, Keith & Beryl Steele, Rod Trentham, Kevin, Doreen & Thea Wingert, Kerry & Marjorie Wood.

Rimbey: Dec. 18. Participants: Frank & Olga Lind.

Rocky Mountain House: Dec. 18. Compiler: Darrell Smith, Box 1720, Rocky Moutain Hose, AB T0M 1T0. Participants: Hazel Anderson, Brian Burrington, Doug Dewitt, Angie Edgerton, Kathleen Elliot, Josephine Feys, Freda Fleming, Hazel Hamilton, Phyllis Jarvin, Carol Jones, Connie Madson, Gladis Odenbach, Gerry Owens, Joyce Peterson, Ed Pichota, Percy Raymont, Elma Shaw, Marie Simpson, Barb Smith, Olivia Smith, Darrell Smith, Joan Smith, Mabel Smith, Robert Spoor, Charley Whitesell.

St. Albert: Dec. 26. Compiler: Peter Demulder, 47 Geneva Crescent, St. Albert, AB T8N 0Z3. Participants: Bob & Gail Lane, Barb Baller, Chris Lane, Karen McDougal, Ryan Steedman, Miles Constable, Roger Edwards, Elsi & Weller, Sharon Ramsay, Alice Hendry, Jasper Keizer, Rick Morse, Lynne Bandura, Don Maine, Laura Goodchild, Marilyn & Bill M, Jake Stell, Ann Conlin, Lyle & Marie McCann, Ludo Bogaert, Pat Sturgess, Deirdre & Jill Demulder, Peter Demulder, Scott Bricker, Rena Buniak, Suzanne Benoit, Mary Anderson, Mel, Lawrence, Mathan, Adam, Breanne, Jordan Landry, Wilma Turkington, Jackie Willier, Myron Korz, James & Pattie Webb, Peggie Mair, Ed & Muriel Toop, Ken Crerar, Petra & Kim Rowell, Hugh Smith, Phil Sturgess, Derek Chaston, Christine Chaston, Beth Jenkins, Ruth Horne, Lorraine Dauphinais, Peggy Bradford, D. Nadeau, Allen, Andrew, Steven Hingston, Doreen Rowe, Allan Rowe, Dave Nadeau, Allen, Andrew, Harvey & Catherine Kuszmaniuk, Fin, Tony, Terry, Brendan Fairfield, Don & Scott Gerylo, Ron Hollingworth, Larry & Sandra St.Croix, June, Maureen, Peter Bell, Dave & Carrie Organ.

St. Paul: Dec. 23. Compiler: Blair Rippin, 5121 - 45 Avenue, St. Paul, AB T0A 3A4. Participants: Rita & Floyd Kunnas, Velma Hudson, Dick Brown, Jan Young, Blair Rippin, Roland DeCosse, Dennis & Dwayne Giggs, George, Laura, & Stephen Hamilton, Hugh, David, & Michael Norris, Ruth & Grant Gunderson, Paul & Gladys Boisvert, Marie-Jeanne Dumaine, Sandra & Murray Greer, Marilyne Dwyer, Toni & Marsh Hopkins, Luc Dumont, Carl Hempert, Betty Sawatz, Florence Gagne, Kathleen McCabe, Jim Williams.

Sheep River: Dec. 23. Compiler: Doug Collister, 3426 Lane Cr. S.W., Calgary, AB T3E 5X2. Participants: Andrew Booth, Graham Booth, Gary Clarke, Doug Collister, Luke DeWit, Olga Droppo, Dena Farquharson, Shirley Fraser, Bob Greggs, Gworge Halmazna, Mike Harrison, Greg Meyer, May Parker, Mike Preston, John Riddell, Peter Roxburgh, Peter Sherrington, Andrew Slater, Wayne Smith, Elaine Spitzer, Milt Spitzer, Don Stiles, Bob Storms, Richard Trehan, Howard Troughton, Phil Vermette, Lynn Vogt, Tom Webb, Ray Wershler, Merrill Wershler.

Snake's Head: Dec. 31. Compiler: Doug Collister, 3426 Lane Cr. S.W., Calgary, AB T3E 5X2. Participants: Bill Clark, Gary Clarke, Doug Collister, Sheila Cox, Olga Droppo, Joel Duncan, Rodger Dunn, Brian Elder, Dena Farquharson, Lenora Flynn, Dick Flynn, Shirley Fraser, Michael Harrison, Ferrell Haug, Al Kimberley, John McFaul, Greg Meyer, Pat Michell, John Osner, May Parker, Jamey Podlubny, John Riddell, Scott Rogers, Michael Rogers, Barbara Sherrington, Peter Sherrington, Wayne Smith, Milt Spitzer, Don Stiles, Bob Storms, Howard Troughton, Ray Wershler, Merrill Wershler, Doug Woodsworth.

Stettler: Dec. 18. Co-Compilers: Carol L. Simpson & Lloyd Lohr, #20 Emmerson Acres, P.O. Box 40, Stettler, AB T0C 1G0. Participants: Charlie Bird, Dorothy Brownlee, Mary Ann & Oliver Bull, Hugh & Nora Charles, Allen & Bertha Clarke, Doris & Peter Cooper, Norman Dean, Trudie Grafe, Bernice & Lloyd Greenlee, Elmer Gross, Bud & Sonia Haddow, Gladys & Wilf Hewlett, Lawrence Kennedy, Agnes & Rolf Lehman, Bea & Marvin Lohr, Lloyd Lohr, George & Grace Neill, Evelyn O'Hara, Irma Simons, Carol Simpson, Davis & Les Simpson, Bertha Smith.

Sylvan Lake: Dec. 18. Participants: Dietrich Ammeter, Julian & Sylvia Fenech, Ted & Doreen Insinger, Myrna Pearman, Elizabeth Peck, Betty & Orville Van Slyke.

Tofield: Dec. 18. Compiler: Patricia Jones, Box 29, Tofield, AB T0B 4J0.

Trapline: Dec. 17. Compiler: Ellen Craig, R. R. #1, Wembley, AB T0H 3S0. Participants: Gavin & Ellen Craig, Craig Wahl.

Vermilion: Dec. 17. Compiler: Iris Davies, Box 93, Dewberry, AB T0B 1G0. Participants: Walter & Dorine

Dietz, Hilary Tarrant, Stu Heard, Bart Ottoson, Chris Olsen, Wayne & Marilyn Campbell, Ralph & Iris Davies, Irene Smith, Glen Smith.

Wabamun Lake: Jan 1. Compiler: Alan Hingston, 53 Wakefield Blvd., St. Albert, AB T8N 3G1. Participants: Jim & Barb Beck, Peter Demulder, Ross Dickson, Bruce Dunlop, Alan Hingston, Wes Hochachka, Stefan Jungkind, Janos Kovacs, Jim Lange, Ed Mah-Lim, Pat Marklevitz, Dave Nadeau, Bob Parsons, Alf Scott, Lisa Takats, Terry Thormin Fred Whiley.

Waterton Lakes: Dec. 17. Compiler: Teresa Dolman, 37 Carleton Road W., Lethbridge, AB T1K 3X4. Participants: Peter Achuff, Lloyd & Bruce Bennett, Teresa & Doug Dolman, Wayne Dwornik, Witold Gierulski, Graeme & Patty Greenlee, Ken Moore, Gordon & Hazel Ross, Liz Savoy, Shirley Sillito, Janice, Fraser, Jesse & Tyler Smith.

Wembley: Dec. 18. Compiler: Ellen Craig, R.R. #1, Wembley, AB T0H 3S0. Participants: Gavin & Ellen Craig.

Wildlife Reserve: Dec. 27. Compiler: Jamey Podlubny, 3516 - 60 Street N.W., Calgary, AB T3B 5E8. Participants: Mairi Babey, Doug Collister, Mike Collister, Olga Droppo, Joel Duncan, Shirley Fraser, Don Greenfield, George Halmazna, Clay Hunt, Allan Kimberley, Ellen Lee, Karen McCullough, John McFaul, Jasper Michie, Jamey Podlubney, John Richardson, John Riddell, Chip Scialfa, Peter Sherrington, Gwen Simpson, Annie Smith, Don Smith, Wayne Smith, Don Stiles, Bob Storms, Richard Trahan, Howard Troughton, Merril Wershler, Ray Wershler, Bill Wilson.

Species Recorded on Five or Fewer Counts

Species	Counts Recorded
Common Loon	Waterton Lakes 2
Horned Grebe	Waterton Lakes 1
Red-necked Grebe	Wabamun Lake 1
Western Grebe	Prairie Oasis 1
Great Blue Heron	Red Deer 1; Wabamun Lake 1
Tundra Swan	Bow/Kan 1; Lethbridge 1
Trumpeter Swan	Dickson Dam 1; Wabamun Lake 3
Wood Duck	Calgary 2
Green-winged Teal	Calgary 6; Bow/Kan 1; Fish Creek Park 1
Northern Shoveler	Wabamun Lake 4
Gadwall	Calgary 3; Wabamun Lake 14
Northern Pintail	Calgary 7; Edmonton 2; Medicine Hat 4; Wabamun Lake 1
American Wigeon	Calgary 4; Fish Creek Park 6; Wabamun Lake 4
Canvasback	Dickson Dam 1
Redhead	Calgary 1; Dickson Dam 9; Wabamun Lake 6
Ring-necked Duck	Fish Creek Park 1; Wabamun Lake 19
Harlequin Duck	Edmonton 1
Goldeneye *Sp.*	Banff/Canmore 2; Jasper 6
Bufflehead	Banff/Canmore 1; Calgary 61; Fish Creek Park 3; Wabamun Lake 2
Hooded Merganser	Bow/Kan 1; Calgary 5; Prairie Oasis 1; Wabamun Lake 17
Red-breasted Merganser	Lethbridge 3
Northern Harrier	Jasper 1; Penhold 3; St. Albert 1; Wildlife Reserve 1
Cooper's Hawk	Calgary 1; Claresholm 1
Accipter *Sp.*	Banff/Canmore 1
Red-tailed Hawk	Dickson Dam 1; Evergreen 1; Lethbridge 1; Wabamun 1
Buteo *Sp.*	Snake's Head 1
Eagle *Sp.*	Fort Saskatchewan 1
Peregrine Falcon	Horseshoe Canyon 1
Prairie Falcon	Calgary 2; Claresholm 6; Horseshoe Canyon 2: Lethbridge 1
Hawk *Sp.*	Beaverlodge 1; Vermilion 1
Spruce Grouse	Edson 12; Fort Smith 1; Rocky Moutain House 1
Willow Ptarmigan	Fort McMurray 7; Fort Smith 4
White-tailed Ptarmigan	Bow Summit 26
Grouse *Sp.*	Snake's Head 1
Wild Turkey	Claresholm 21
American Coot	Dickson Dam 1
Killdeer	Calgary 2; Fish Creek Park 2; Sheep River 1; Snake's Head 5
Common Snipe	Snake's Head 1
Mourning Dove	Calgary 1; Lethbridge 5
Northern Pygmy-Owl	Edson 1; Sheep River 3; Snake's Head 2; Wildlife Reserve 4
Barred Owl	Edmonton 1; Sheep River 1; Snake's Head 2; Wabamun Lake 1
Owl *Sp.*	Snake's Head 4
Belted Kingfisher	Banff/Canmore 3; Bow/Kan 2; Calgary 2; Jasper 1
Clark's Nutcracker	Banff/Canmore 34; Bow/Kan 4; Jasper 1; Waterton Lakes 1
Chestnut-backed Chickadee	Waterton Lakes 1
Chickadee *Sp.*	Banff/Canmore 46; Erskine 1
Winter Wren	Bow/Kan 1
Townsend's Solitaire	Banff/Canmore 9; Edmonton 3; Jasper 1; Lethbridge 1; Pine Lake 1

Species	Counts Recorded
Varied Thrush	Banf/Canmore 1; Devon/ Calmar 1; Erskine 1
Cedar Waxwing	Calgary 4; Edmonton 8
Shrike *Sp.*	Larkspur 1; Ponoka 1
Yellow-rumped Warbler	Calgary 1; Wabamun Lake 1
Song Sparrow	Calgary 2
Lincoln's Sparrow	Edmonton 1
White-crowned Sparrow	Edmonton 1; Edson 1; Jasper 1; St. Paul 1
Sparrow *Sp.*	Banff/Canmore 8; Caroline 2
Lapland Longspur	Banff/Canmore 1; Horseshoe Canyon 1
Red-winged Blackbird	Snake's Head 2
Western Meadowlark	Sheep River 1
Yellow-headed Blackbird	Wabamun Lake 1
Rusty Blackbird	Horseshoe Canyon 1; Snakes's Head 6

Species	Counts Recorded
Brewer's Blackbird	Fort McMurray 1; Jasper 1; Lethbridge 12; Medicine Hat 1
Common Grackle	Fort Vermilion 1; Medicine Hat 28
Blackbird *Sp.*	Eleske Shrine 1; Sheep River 28; Snake's Head 1
Gray-crowned Rosy Finch	Banff/Canmore 30
Purple Finch	Edmonton 3; Lethbridge 2; Ponoka 2; Red Deer 1
House Finch	Calgary 9
Red Crossbill	Edmonton 1; Elk Island 1; Fort Vermilion 5; Hinton 8; Wildlife Reserve 6
Hoary Redpoll	Coyote Lake 1
Redpoll *Sp.*	Edson 30

Alberta Christmas Bird Counts 1994

LOCALITY	Alix	Banff/ Canmore	Beaver lodge	Berwyn	Bow Kan	Bow Summit	Buffalo Lake	Cal- gary	Card- ston	Caro- line	Cars- tairs	Clares- holm
SPECIES												
Canada Goose					5			3416				51
Mallard		1422			16			13015				
Lesser Scaup								2				
Common Goldeneye		204			51			3358				
Barrow's Goldeneye		36			28			16		2		
Common Merganser								89				
Bald Eagle		2		1	3			9	1			2
Northern Goshawk		1			2			5				1
Sharp-shinned Hawk		1			1			3				
Rough-legged Hawk			4		1			1				2
Golden Eagle									1			5
Merlin								23				4
Gyrfalcon								2				
Gray Partridge			20					53			6	53
Ring-neck Pheasant	2			4			8	24	1			15
Ruffed Grouse	3		18	6	6		3	4				3
Sharp-tail Grouse				14				1		2		
Rock Dove	150	6	260	15	20		50	2281	43	15		302
Great Horned Owl	2	1	4		1		1	12	6		1	17
Snowy Owl							1	1	1			3
Northern Hawk Owl	1						1					
Great Gray Owl				2								
N. Saw-whet Owl				2	1					1		
Downy Woodpecker	3	14	10	12	5		22	91	2	19		11
Hairy Woodpecker	4	11	8	12	9		9	18		12		5
Thr.-toed W'pecker		4				1						
Bl.-back W'pecker												
Northern Flicker		1						28	3	1		6
Pileated Woodpecker		5		1	1		1	2		1		
Woodpecker Sp.			1									
Horned Lark									44			12
Gray Jay		75	13	11	36	4		2		16		
Blue Jay	12	17	43	68	2		27	256	5	22	3	8
Steller's Jay		2			1					2		
Black-bill Magpie	4	207	126	55	27		42	1945	35	5	11	156
American Crow	4	17			6			11		12		
Common Raven	6	168	34	66	113	4	1	85	2	7		31
Black-cap Chickadee	14	206	154	139	168		229	1238		174	9	76
Mountain Chickadee		166			139			5		1		3
Boreal Chickadee		87	1	4	37	4		46		22		
Red-br. Nuthatch		47		1	7			41		1		
White-br. Nuthatch		20	10	4	8		4	53		23		7
Brown Creeper		3						6				
American Dipper		39			72			7				
Golden-cr. Kinglet		3						26				3
American Robin		3	1				1	19				1
Bohemian Waxwing	28	322	51	61	111		45	3616		1		37
Northern Shrike		1	3		1		1	5				1
European Starling		1	11	5			8	1113	12			84
Am. Tree Sparrow												
Wh.-throat Sparrow					1			15				2
Harris' Sparrow								2				
Dark-eyed Junco		19						13				
Snow Bunting		6	237	202	230		400	1				
Pine Grosbeak		609	49	204	250		3	339	4	54		25
Wh.-wing Crossbill					24							
Common Redpoll		5					5	5		20		4
Pine Siskin		1						103				25
Evening Grosbeak		47	6	107	2			2				4
House Sparrow	71	215	401	92	40		163	4655	106	95	15	683
TOTAL COUNTS:												
Birds & Five +/-	304	4130	1466	1087	1434	39	1025	36176	266	508	45	1670
Total Species	14	46	22	24	41	5	22	66	15	23	6	36
Participants	2	58	14	23	65	2	32	165	8	15	4	20

Alberta Naturalist Bird Counts 1994

LOCALITY	Coyote Lake	Crest-omere	Devon/ Calmar	Dickson Dam	Drayton Valley	Eagle-sham	Eck-ville	Edmonto	Edson	Eleske Shrine	Elk Island	Elk Point
SPECIES												
Canada Goose				1				26				
Mallard				160				699				
Lesser Scaup				49				2				
Common Goldeneye				48	32			56				
Barrow's Goldeneye												
Common Merganser					4			6				
Bald Eagle			1		1			1	1			
Northern Goshawk	1		1					4	1		2	
Sharp-shinned Hawk								2				
Rough-legged Hawk	1		3	1				4				
Golden Eagle												
Merlin								28				
Gyrfalcon								1				
Gray Partridge								65				
Ring-neck Pheasant	1		2					6				
Ruffed Grouse	3		11		7			11	53		16	
Sharp-tail Grouse									1	8		
Rock Dove	15	30	86	41		8	1	4064	3		23	
Great Horned Owl	2	2	15					42				
Snowy Owl		1	5				3	3		1		
Northern Hawk Owl					1				1			
Great Gray Owl							1					
N. Saw-whet Owl	1		4					18				
Downy Woodpecker	14	3	30	1	2	5	3	199			11	6
Hairy Woodpecker	12	1	23		1	8	1	92	36		28	4
Thr.-toed W'pecker								2			1	
Bl.-back W'pecker								1				
Northern Flicker								25				
Pileated Woodpecker	2		3	1				13	5		2	
Woodpecker Sp.											1	
Horned Lark												
Gray Jay	23				11	4	3	1	132	3		
Blue Jay	52	3	49	2	6	17	5	1149	86		54	8
Steller's Jay									1			
Black-bill Magpie	38	20	161	51	14	10	4	3339	83	1	143	15
American Crow							7	8				
Common Raven	99		55	7	32	4	4	25	315	5	24	5
Black-cap Chickadee	225	18	316	28	23	38	59	4327	419		259	11
Mountain Chickadee									1			
Boreal Chickadee	19		26	14				74	34		31	
Red-br. Nuthatch	4		5					188	8			2
White-br. Nuthatch	11	1	22				1	300	31		12	2
Brown Creeper								1	3		2	
American Dipper												
Golden-cr. Kinglet								5				
American Robin			1					13				
Bohemian Waxwing	5	9	1855	5				4059				3
Northern Shrike	1		1					6	1		1	
European Starling			34				40	841	1			1
Am. Tree Sparrow												
Wh.-throat Sparrow								4				
Harris' Sparrow			1									
Dark-eyed Junco								94				
Snow Bunting	480	50		30	350	162	500	1	623	120		
Pine Grosbeak	61		42		18	39	20	401	170	4	14	37
Wh.-wing Crossbill								15			4	
Common Redpoll	75		2					40				2
Pine Siskin								295				
Evening Grosbeak	129		46		7	11		24	102		12	8
House Sparrow	154	15	242	110				7453	99		64	67
TOTAL COUNTS:												
Birds & Five +/-	1429	153	3045	562	509	306	652	28050	2283	144	705	171
Total Species	26	12	31	21	19	11	15	57	30	4	20	14
Participants	26	4	24	4	1	7	5	672	52	2	19	4

Alberta Christmas Bird Counts 1994

LOCALITY	Erskine	Ever-green	Fish Cr Park	Ft.Mc-Murray	Fort Sask.	Fort Smith	Ft.Ver-milion	Grande Prairie	Gull Lake	Haynes	High Level	High Prairie
SPECIES												
Canada Goose			406									
Mallard			178		111							
Lesser Scaup												
Common Goldeneye			336		300							
Barrow's Goldeneye			1									
Common Merganser			18									
Bald Eagle			8		1				1			
Northern Goshawk	1							1			1	
Sharp-shinned Hawk												
Rough-legged Hawk												
Golden Eagle	1				1							
Merlin									17			
Gyrfalcon					1			1				
Gray Partridge					11				10			
Ring-neck Pheasant	2		5		6				5			
Ruffed Grouse	6			12	5	9	7	3	1	2	21	7
Sharp-tail Grouse							1					
Rock Dove	79				562	21		221	156	6		
Great Horned Owl	3		3		5		1		2	1		
Snowy Owl	3							2	2			
Northern Hawk Owl							1					
Great Gray Owl									1		1	
N. Saw-whet Owl												
Downy Woodpecker	18		14	7	28		3	3	44	3	4	2
Hairy Woodpecker	14		8	28	20	3	3	15	24	1	2	2
Thr.-toed W'pecker							1				3	
Bl.-back W'pecker				1			1				1	
Northern Flicker			1									
Pileated Woodpecker	1			5	1				5			
Woodpecker Sp.							2	1				
Horned Lark												
Gray Jay				62	4	26	24	15			18	6
Blue Jay	40		3	72	67		18	24	90			19
Steller's Jay												
Black-bill Magpie	99	5	107	75	274		10	125	80	8	9	15
American Crow				1								
Common Raven	10	1	21	491	14	218	48	83	44	1	110	39
Black-cap Chickadee	195	1	201	180	229	30	61	139	396	76	48	23
Mountain Chickadee												
Boreal Chickadee	1	2	24	33	14	40	2	2	17	1	7	
Red-br. Nuthatch			5		4			3		1		
White-br. Nuthatch	1		11		9			2	37	2		
Brown Creeper			1									
American Dipper			2									
Golden-cr. Kinglet												
American Robin				1								
Bohemian Waxwing	40	2	250	153	393			111	241			
Northern Shrike	3				1			1	1			
European Starling			1	14	35			18	4			
Am. Tree Sparrow				5								
Wh.-throat Sparrow					2							
Harris' Sparrow												
Dark-eyed Junco			2	1	1	4			8			
Snow Bunting	125			60			24	33	640		20	
Pine Grosbeak	95	1	28	414	37	34	146	71	324	20	39	60
Wh.-wing Crossbill					4	20						
Common Redpoll	6			19			48		3			
Pine Siskin				5			5			40		
Evening Grosbeak	14	32		222	118		90	39	40	14	34	4
House Sparrow	205	32		100	608			484	374	40		8
TOTAL COUNTS:												
Birds & Five +/-	965	77	1648	1969	2867	410	502	1397	2461	216	319	185
Total Species	25	9	29	25	30	12	21	22	27	15	16	11
Participants	32	2	16	31	25	17	13	17	31	5	5	5

Alberta Christmas Bird Counts 1994

LOCALITY	Hinton	H'shoe Canyon	Jasper	Kimiwan McLenna	Kneehil Valley	Lac La Biche	Lacombe	Larkspur	Lethbridge	Med' Hat	Olds	Penhold
SPECIES												
Canada Goose									3324	5177		
Mallard			15						5771	1090		
Lesser Scaup												
Common Goldeneye									714	111		
Barrow's Goldeneye	4											
Common Merganser			3						1	15		
Bald Eagle	1		1						10	7		
Northern Goshawk		3							1		1	
Sharp-shinned Hawk										1		
Rough-legged Hawk									2		2	
Golden Eagle									1	4		
Merlin		1							2	1		
Gyrfalcon		1										
Gray Partridge		11					15		30	21		
Ring-neck Pheasant		24			2				30	85		
Ruffed Grouse	14		2	1	3	12		1				
Sharp-tail Grouse				3		6		1		3		
Rock Dove	8	52	11	25	156	28		3	280	554	15	34
Great Horned Owl	1	3		1	3	2			7	17	1	
Snowy Owl		2		1			1		2			
Northern Hawk Owl					1							
Great Gray Owl												
N. Saw-whet Owl												
Downy Woodpecker	5	12	1	6	4	24	10	2	18	10		2
Hairy Woodpecker	9	7	2	9	4	21	7	2	5	3		2
Thr.-toed W'pecker	6		1									
Bl.-back W'pecker						3						
Northern Flicker		1					1		21	22		
Pileated Woodpecker	3	4			1	4						
Woodpecker Sp.												
Horned Lark									14	26		
Gray Jay	55		16	5		20		5				
Blue Jay	39	52	3	72	13	53	22	13	35	22	2	5
Steller's Jay			10									
Black-bill Magpie	35	302	32	87	8	69	12	16	256	595	15	36
American Crow			5	6	4	1			51			
Common Raven	212	9	178	78	8	130	1	25	1			16
Black-cap Chickadee	128	189	15	141	20	249	38	20	64	62	4	15
Mountain Chickadee			2									
Boreal Chickadee	30		18	25		18	4					
Red-br. Nuthatch	21	1	8	1			1		13	17		
White-br. Nuthatch	3		1		1	16	1		4	1		
Brown Creeper			1							1		
American Dipper	6		23									
Golden-cr. Kinglet		8							10	2		
American Robin												
Bohemian Waxwing		86	58	12	28	29	15		225	185		216
Northern Shrike	1								1			
European Starling	15		24						130	106		1
Am. Tree Sparrow		1							33	1		
Wh.-throat Sparrow									1			
Harris' Sparrow			1						1			
Dark-eyed Junco	1		3	10			1		1	31		
Snow Bunting	34	1053		319		367		690	40			
Pine Grosbeak	86	82	29	160		100		10	48	4	11	20
Wh.-wing Crossbill										1		
Common Redpoll		17		15		2	6			11		
Pine Siskin				2			6			28		
Evening Grosbeak	12	9	44	148		165	21	23	3			
House Sparrow	16	481	118	96	111	229	33	40	684	1098	12	
TOTAL COUNTS:												
Birds & Five +/-	754	2416	637	1223	367	1548	195	852	11860	9345	63	350
Total Species	27	29	35	23	16	22	18	15	45	36	9	11
Participants	30	17	18	25	2	27	9	2	41	26	2	2

Alberta Christmas Bird Counts 1994

LOCALITY	Pine	Ponoka	Prairie	Red	Rimbey	Rocky	St.	St.	Sheep	Snake's	Stett-	Sylvan
	Lake		Oasis	Deer		Mtn.Hse	Albert	Paul	River	Head	ler	Lake
SPECIES												
Canada Goose			6	1					11			
Mallard			400	743			900	1	1	15		
Lesser Scaup			1	1								
Common Goldeneye			2	51						1		
Barrow's Goldeneye				1								
Common Merganser				1								
Bald Eagle				3					3	3		
Northern Goshawk						1			4	2		
Sharp-shinned Hawk		1		1					1			
Rough-legged Hawk							2		65	32		
Golden Eagle			1						2			
Merlin		1		2		1	3		1			
Gyrfalcon												
Gray Partridge		7	7				18				13	
Ring-neck Pheasant											2	
Ruffed Grouse	1	7		1	1	4		12	17	5	2	
Sharp-tail Grouse								5				
Rock Dove		312	121	129		12	841	432		75	218	
Great Horned Owl		3		8			2	1	5	1	2	2
Snowy Owl		5		1			13	2			2	
Northern Hawk Owl												
Great Gray Owl							1		2	2		
N. Saw-whet Owl		1							1	1		
Downy Woodpecker	1	33		43	2	20	37	11	40	44	28	7
Hairy Woodpecker	1	19		22	2	16	20	9	28	26	14	4
Thr.-toed W'pecker									6	6		
Bl.-back W'pecker												
Northern Flicker				5					1	2		
Pileated Woodpecker		4		5	2	2			1	14		
Woodpecker Sp.									4			
Horned Lark												
Gray Jay		6				34	3	3	174	142		
Blue Jay	7	52		111		40	68	21	38	110	54	7
Steller's Jay						4				1		
Black-bill Magpie	11	71	26	250	4	20	399	111	216	265	109	4
American Crow							2			2		
Common Raven	1	16		12	2	47	8	16	260	349		1
Black-cap Chickadee	7	331		372	20	194	551	182	846	621	198	77
Mountain Chickadee									43			
Boreal Chickadee		16		21	4	26	18	1	138	201		
Red-br. Nuthatch				18		2	7		5	10		
White-br. Nuthatch		35		30	2	26	27	4	16	36	8	8
Brown Creeper				1		1	2		13	1		
American Dipper									13	6		
Golden-cr. Kinglet									18	7		
American Robin		1		1			9					
Bohemian Waxwing		400		1301		178	2160	188	106	148	291	38
Northern Shrike				2			2	2	11	5	2	
European Starling		6		9			217			7		
Am. Tree Sparrow									12	5		
Wh.-throat Sparrow				1								
Harris' Sparrow											1	
Dark-eyed Junco		1		1		2	6	10		1	1	
Snow Bunting		251	100		50		1760	151	8	1155	135	
Pine Grosbeak		77		101	3	99	100	34	387	181	11	4
Wh.-wing Crossbill												
Common Redpoll				21		14			57	26	106	
Pine Siskin		7		16		66		7	72	123		
Evening Grosbeak		237		58	25	100	32	43	36	41	1	
House Sparrow	2	270	2	121		62	632	632	24	359	432	42
TOTAL COUNTS:												
Birds & Five +/-	32	2173	668	3467	117	971	7842	1882	2722	4057	1630	194
Total Species	9	30	12	38	12	25	31	24	44	45	21	11
Participants	3	40	2	37	2	33	85	30	29	33	33	7

Alberta Christmas Bird Counts 1994

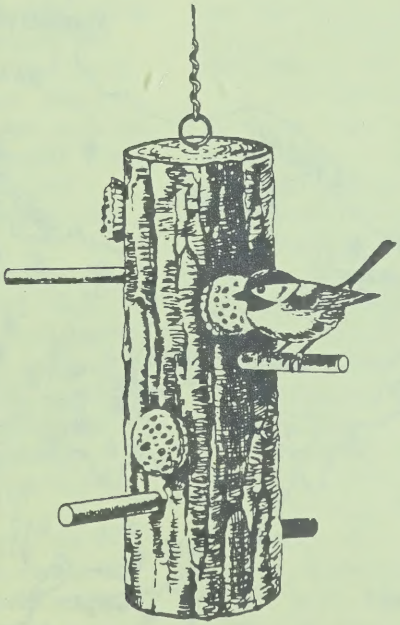
LOCALITY	Tofield	Trapline	Vermilion	Wabamun Lake	Waterton Lakes	Wembley	Wildlife Reserve		TOTAL
SPECIES									
Canada Goose				1					12425
Mallard				34	8				24579
Lesser Scaup				64					119
Common Goldeneye				276	12				5553
Barrow's Goldeneye					2	1			90
Common Merganser				10					141
Bald Eagle	1				2	1	3		67
Northern Goshawk	1	1		5			4		45
Sharp-shinned Hawk									11
Rough-legged Hawk		1				2	23		146
Golden Eagle					2		1		18
Merlin			1	1					71
Gyrfalcon				1					7
Gray Partridge	13		30			26			409
Ring-neck Pheasant	1		2				2		229
Ruffed Grouse	1	5	6	16	1	18	37		384
Sharp-tail Grouse			9			2	3		59
Rock Dove	165		170	65		34	76		12275
Great Horned Owl	4		6	11		3	4		208
Snowy Owl			11	1		3			70
Northern Hawk Owl									6
Great Gray Owl							1		9
N. Saw-whet Owl				6					35
Downy Woodpecker	11		12	34		4	17		1056
Hairy Woodpecker	8	2	17	27		5	19		724
Thr.-toed W'pecker		1					13		45
Bl.-back W'pecker									8
Northern Flicker				1			1		120
Pileated Woodpecker	1	1		11			5		107
Woodpecker Sp.							5		14
Horned Lark						4			100
Gray Jay		4		38	10	1	155		1160
Blue Jay	24		29	84		10	75		3288
Steller's Jay					10				31
Black-bill Magpie	155	7	131	101	14	107	156		10919
American Crow					2				139
Common Raven	7	32		56	14	181	313		4144
Black-cap Chickadee	78	3	91	742	11	44	334		15356
Mountain Chickadee					10		14		384
Boreal Chickadee		1		67			99		1228
Red-br. Nuthatch				2	3		8		434
White-br. Nuthatch	5			37	2		15		852
Brown Creeper									36
American Dipper					9		5		182
Golden-cr. Kinglet					4		8		94
American Robin									51
Bohemian Waxwing			245		15				17322
Northern Shrike			1	6		4	3		68
European Starling						1			2739
Am. Tree Sparrow									57
Wh.-throat Sparrow					1				27
Harris' Sparrow							1		7
Dark-eyed Junco					2		2		215
Snow Bunting	255		172	287		40	9		11170
Pine Grosbeak	16	7	21	57	16	21	276		5483
Wh.-wing Crossbill									68
Common Redpoll		200		152			94		955
Pine Siskin									801
Evening Grosbeak	4			88		12	30		2246
House Sparrow	276		286	168		125	219		23161
TOTAL COUNTS:									
Birds & Five +/-	1026	265	1242	2525	155	649	2044		162142
Total Species	19	13	20	46	25	23	38		120
Participants	17	3	10	18	18	2	30		2062

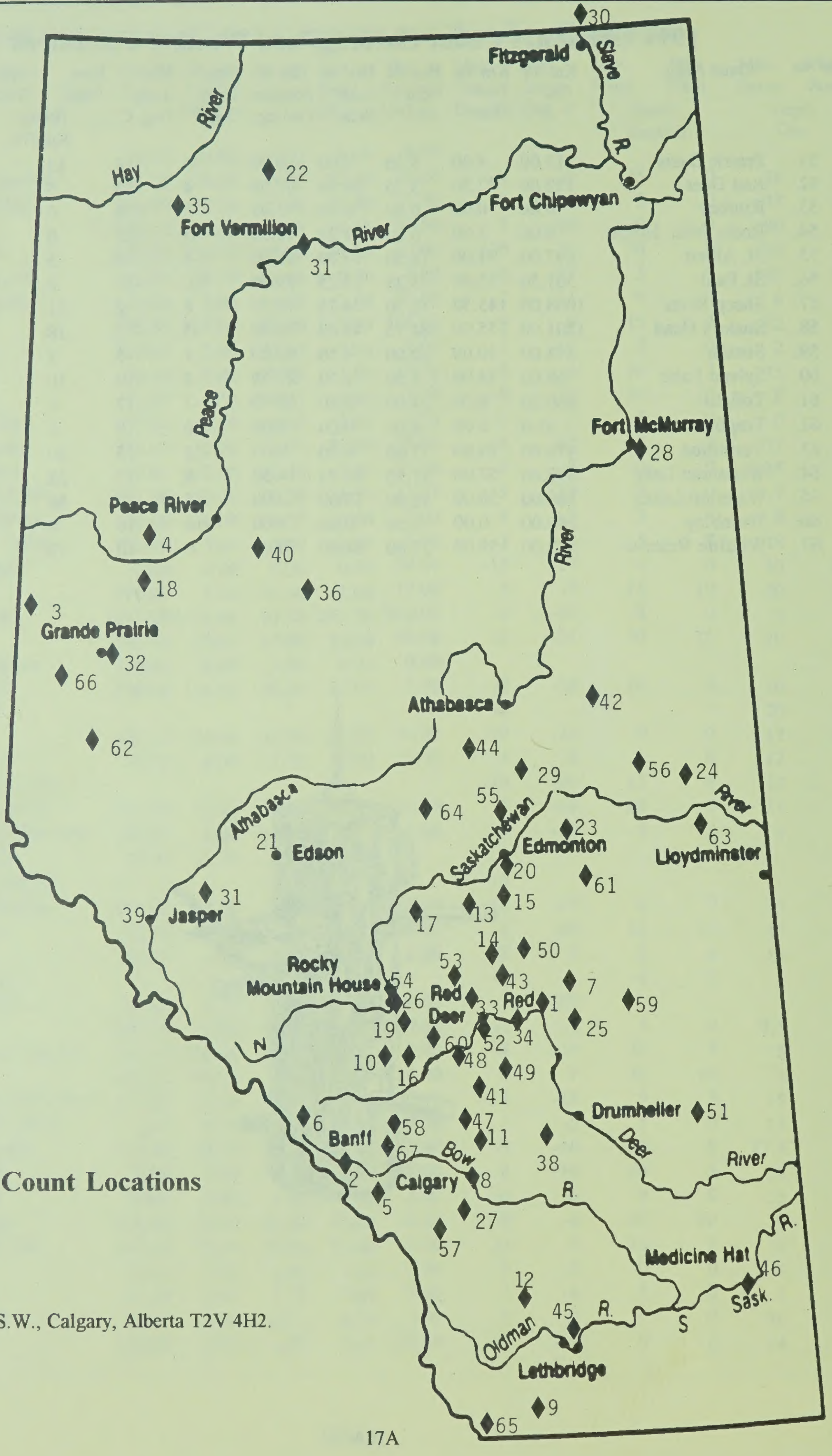
1994 Christmas Count Coverage and Weather Conditions

Map No.	Count Name	Km. by Car	Km. no Foot/ Skis	Hrs. on Car	Hrs. on Foot/ Skis	Hrs. at Feeders/ Owling	Max. Temp. Deg.C	Min. Temp. Deg. C	Max. Wind	Min. Wind	Max. Snow	Min. Snow
									Speed Kms/Hr.		Depth Cm.	
1.	Alix	0.00	15.00	0.00	4.00	8.00						
2.	Banff/Canmore	261.50	174.00	13.00	92.50	32.00	4	-1	25	0	30	15
3.	Beaverlodge	888.00	17.50	25.00	10.50	11.50	-9	-19	3	0	33	20
4.	Berwyn	410.00	30.20	11.25	15.33	44.50	1	-10	0	0	90	3
5.	Bow/Kan	403.00	252.50	9.50	115.50	49.00	-10	-26	30	0	20	0
6.	Bow Summit	55.00	13.00	2.00	9.50	0.00	-18	-27	5	0	102	92
7.	Buffalo Lake	120.00	3.00	4.50	1.50	30.00	-1	-11	0	0	6	4
8.	Calgary	678.40	227.00	27.00	162.00	485.00	9	0	19	4	22	10
9.	Cardston	353.00	3.00	10.00	2.00	1.00	-5	-10	5	0	2	0
10.	Caroline	0.00	9.00	0.00	5.50	19.00	9	-6	10	5	15	0
11.	Carstairs	85.00	3.50	4.25	0.50	1.50	-8	-12	30	10	8	1
12.	Claresholm	535.00	12.00	24.00	7.00	0.00	6	2	5	0	0	0
13.	Coyote Lake	275.00	12.00	12.00	37.00	35.00	-8	-12	5	3	12	0
14.	Crestomere	50.00	2.00	2.50	2.00	13.00	2	-8	0	0	25	5
15.	Devon-Calmar	1031.00	50.60	48.50	14.50	53.25	-3	-10	8	0	9	4
16.	Dickson Dam	131.00	16.00	8.50	6.50	3.00	4	-7	5	0	8	0
17.	Drayton Valley	175.00	3.00	5.00	2.00	1.00	-2	-8	5	3	18	3
18.	Eaglesham	0.00	0.00	0.00	0.00	30.00	-15	-17	0	0	40	20
19.	Eckville	160.00	5.00	41.00	1.00	12.00	5	-5	15	10	20	10
20.	Edmonton	1373.00	4121.00	80.50	242.50	872.00	-3	-10	8	0	9	0
21.	Edson	345.00	29.00	21.00	15.00	44.00	-2	-21	30	15	20	10
22.	Eleske Shrine	120.00	0.00	3.00	0.00	0.00						
23.	Elk Island	196.00	114.00	20.00	45.00	2.00	-8	-18	10	0	10	0
24.	Elk Point						-8				20	12
25.	Erskine	494.50	24.00	17.50	12.25	34.50	-10	-21	0	0	12	10
26.	Evergreen	80.00	6.50	1.75	2.00	6.50	3	0	6	0	12	5
27.	Fish Creek Park						-10	-20	12	6	12	6
28.	Fort McMurray	115.00	41.00	7.00	36.00	21.00	-7	-18	20	5	11	5
29.	Fort Saskatchewan	628.00	4.40	39.25	2.75	25.00	-8	-18	4	2	4	2
30.	Fort Smith	87.00	15.50	8.50	10.00							
31.	Fort Vermilion						-15					
32.	Grande Prairie	523.00	18.00	21.50	8.50	14.25	-10	-15	0	0	33	25
33.	Gull Lake	52.00	19.00	7.00	7.50	58.50	4	-10	15	10	15	2
34.	Haynes	80.00	1.50	1.50	1.00	1.00	8	2	5	0	10	3
35.	High Level						-15		4	0		
36.	High Prairie	15.00	0.00	4.00	0.00	4.00		-25				
37.	Hinton	207.00	31.00	11.50	21.60	19.00	-1	-5	3	0	7.5	0
38.	Horseshoe Canyon	779.00	110.00	19.50	57.75	0.00	-4	-18	32	8	5	0
39.	Jasper	126.00	80.00	7.50	33.50	14.00	0	-7	30	10	8	0
40.	Kimiwan/McLennan	105.00	11.00	17.00	3.00	160.00	-21	-25	9	5	15	5
41.	Kneehill Valley	0.00	0.00	0.00	0.00	9.00	1	-5	5	0	15	0
42.	Lac La Biche	663.00	28.00	26.75	10.25	37.00	-9	-16	3	0	17.5	15
43.	Lacombe	0.00	0.00	0.00	0.00	25.00	2	-10	10	5	18	4
44.	Larkspur	198.0	0.00	4.00	0.00	2.00	-6	-6	0	0	25	10
45.	Lethbridge	506.00	78.00	21.50	37.50	6.50	8	-4	85	10	0	0
46.	Medicine Hat	342.00	75.00	13.50	35.00	5.00	14	5	15	5	0	0
47.	Olds	34.00	2.00	1.00	1.00	3.00	4	-5	0	0	4	0
48.	Penhold	85.00	0.00	2.75	0.00	3.00	3	-4	5	0	5	2
49.	Pine Lake	30.00	2.00	0.75	2.00	3.00	2	0	5	0	10	1
50.	Ponoka	150.00	5.00	4.00	3.00	28.00	-2	-10	0	0	14	4

1994 Christmas Count Coverage and Weather Conditions

Map No.	Count Name	Km. by Car	Km. no Foot/ Skis	Hrs. on Car	Hrs. on Foot/ Skis	Hrs. at Feeders/ Owling	Max. Temp. Deg.C	Min. Temp. Deg. C	Max. Wind Speed Kms/Hr.	Min. Wind	Max. Snow Depth Cm.	Min. Snow
51.	Prairie Oasis	113.00	4.00	5.50	2.00	0.00	-7	-14	15	0	5	1
52.	Red Deer	122.00	77.50	3.75	20.90	67.50	4	-10	5	0	10	2
53.	Rimbey	0.00	0.00	0.00	0.00	3.00	3	0	0	0	8	2
54.	Rocky Mtn. House	0.00	5.00	0.00	1.25	71.50	-5	-15	0	0	15	3
55.	St. Albert	497.00	94.00	18.50	77.00	68.00	-1	-5	5	1	8	0
56.	St. Paul	501.50	25.00	35.25	13.25	15.00	-10	-15	0	0	15	10
57.	Sheep River	1008.00	145.50	45.50	74.25	42.50	8	-2	21	0	15	0
58.	Snake's Head	1201.00	155.00	84.75	49.00	31.00	-5	-32	18	0	15	7.5
59.	Stettler	374.00	10.00	20.00	4.50	40.50	1	-5	5	2	6	3.75
60.	Sylvan Lake	68.00	14.00	1.50	1.50	29.50	2	-10	10	0	10	2
61.	Tofield	460.00	8.00	24.00	3.50	10.50	-7	-12	0	0	10	4
62.	Trapline	92.0	0.00	4.00	0.00	0.00	0	-10	0	0	20	20
63.	Vermilion	478.00	10.00	33.00	6.00	3.00	-12	-15	10	0	30	10
64.	Wabamun Lake	692.00	57.00	37.50	30.75	14.50	-8	-17	22	7	30	10
65.	Waterton Lakes	186.00	30.00	12.00	13.00	2.00	5	-12	50	15		
66.	Wembley	240.00	0.00	6.50	0.00	4.00	-10	-10	0	0	20	20
67.	Wildlife Reserve	582.00	159.00	29.00	84.00	10.00	0	-10	13	0	25	0




30
Fitzgerald
Slave R.
Hay River
22
35
Fort Vermilion
31
River
Fort Chipewyan
Peace
Fort McMurray
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Peace River
4
40
18
36
3
Grande Prairie
32
66
62
River
Athabasca
42
44
29
56
24
River
55
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Athabasca
Saskatchewan
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Edson
Edmonton
Lloydminster
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Jasper
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Rocky Mountain House
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54
43
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Red Deer
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Red
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25
52
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48
16
49
41
Drumheller
51
6
58
47
11
Deer River
Banff
67
Bow
38
2
Calgary
8
R.
5
27
R.
57
Medicine Hat
46
12
45
Oldman R.
S
Sask.
Lethbridge
9
65

Count Locations

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Alberta Bird Checklist Project

The database created as a result of the Alberta Bird Atlas Project has proved a tremendous asset to researchers and interested birders since the publication of the Atlas. However, it provides only a five year "window" on what is happening to the province's bird populations. Thus, it is desirable to continue the collection of bird data in the province. In order to facilitate this activity, a consistent recording system must be established with a focal point for the distribution, collection and compilation of the data records. The major resource, manpower, is available through the number of Albertans who participate in "birding". These include members of the natural history clubs across the province, professional biologists gathering data for specific projects and the individuals who just want to get out and watch birds.

Bird watchers normally keep some form of record of their observations over a given period of time. This simple form of record keeping has traditionally provided information on geographic ranges and seasonal occurrences of migration. Researchers have also found that checklists can be used to monitor temporal and spatial variation in the abundance of birds.

Two major checklist programs have been initiated in North America to formalize the gathering of this type of information. In Quebec, a field checklist program was started in 1948, and, in 1975, computer coding of all data was undertaken and continues into the present. This has resulted in the Etude des Populations d'Oiseaux du Quebec (EPOQ) or Studies of Bird Populations in Quebec. This database contains more than 2.2 million records of observations recorded on 158,000 checklists from 3,600 observation sites.

The Wisconsin Checklist Project was initiated by the Wisconsin Society for Ornithology in 1982. Over 30,000 checklists have been returned for analysis, and the project produces interpretable data reflecting seasonal, geographic and year-to-year variations in bird populations.

In the spring of 1994, an Extensive Monitoring Technical Committee was struck with membership representing several jurisdictions across North America. This group reviewed the use of the checklist as a data gathering tool and confirmed its value. In 1995, the Committee released a set of guidelines in an attempt to standardize the collection of this type of data across North America.

The Federation of Alberta Naturalists (FAN) together with the Provincial Museum of Alberta, Alberta Fish and Wildlife, the Canadian Wildlife Service and the local birding community has designed a data collection card that follows these recommendations, is user friendly, records data that would be valuable to management agencies and provides checklist information to the birders collecting the information.

A pilot project was initiated to distribute a limited number of the data cards to management agencies, birding clubs and individuals across the province. Participants were asked to use the checklists and provide feedback on the content and format.

The initial response to the idea of a standard, province-wide data collection record was very positive. Several conditions were identified to allow a province-wide data collection program to proceed:

* It should include local clubs and individuals as the main data gathering and entry points.

* Support must be given to this network, including data forms, software to enter the data and produce basic reports, and easy access to a central database.

* A committee of knowledgeable birders must be in place to adjudicate range extensions and the sightings of new species.

* The establishment of a central data collection and storage system.

The Provincial Museum of Alberta has formed a Rare Bird Record Confirmation Committee. Membership was drawn from across the province with two meetings being held to date to establish the mandate and working mechanisms of the committee.

FAN received funding from The Alberta Sport, Recreation, Parks and Wildlife Foundation to establish the network and a central data centre, and to develop the software for distribution to the network. It was decided that individuals should be able to record their own observations and have the option to submit this data electronically to the central data base. In the spring of 1995, FAN began developing version 1.0 of the Personal Birdlist software package. The purpose of this software is to allow individuals to manipulate their own bird records and to assist in the building of an extensive Alberta birdlist database.

One of the major difficulties encountered in the development of this software was dealing with location data. Since most users will not have ready access to high quality maps or own Global Positioning Systems, getting accurate geographic coordinates presented a difficulty. As a result, in this first version of the software, individual birders will create their own birding gazette. Users will enter their best estimate of the geographic coordinates for the areas they visit. In late 1995 and early 1996, these individual gazettes will be compared to the Alberta Geographic Place Names listing to develop a provincial birding gazette. This gazette will form the basis for location recording in the next version of the software.

With a standardized method of recording location, version 2.0 of Personal Birdlist will enable users to perform their own basic mapping of their birding records. Also planned for version 2.0 are more extensive reporting and querying capabilities based on user needs.

In order to assist the Alberta Rare Bird Record Confirmation Committee and increase speed of feedback to system users, an automated record checking routine is being developed. Species records submitted to the Alberta Birdlist Database will be automatically checked against accepted ranges established by historical and current data, as well as accepted arrival and departure dates for migrants. Records conforming to these parameters will be automatically added to the Alberta Birdlist Database. Records not conforming these to parameters will be placed in a holding file and the observer may be requested to provide additional information. It is FAN's and the Records Committee's intent to establish a regional coordination system whereby local vetting of reports for minor range and date extensions will be possible. The automated record checking routine is currently being implemented and is expected to be on line January 1, 1996.

Each disk that is sent out contains a serial number embedded in the program files. This serial number exists to ensure that individuals contributing to the Alberta Birdlist Database are properly credited and identified. Users are asked not to make copies of the software as this results in duplicate serial numbers, and thus prevents data stored in the duplicate system from being shared with anyone. Registered users will be entitled to software updates and will be given access to the FAN Bulletin Board Service (FAN BBS). This electronic bulletin board will enable users to submit their data, receive updates and news about the program, and share information about events and unusual sightings. This service will come on line July 1, 1995 and will operate 7 days a week.

The Personal Birdlist software package is available to any individual or organization wishing to participate in the program. There is no charge for this software, or for the use of the FAN BBS, however, there are long term costs associated with the program and any donation would be well received by FAN. Interested parties are asked to send in the attached registration form for administrative purposes. If you are interested in participating in the program please fill out the form and return it to:

The Federation of Alberta Naturalists
Box 1472
Edmonton, AB T5J 2N5

- -

Registration Form

Name______________________________

Street Address______________________________

City/Town______________________________

Postal Code______________________________

Home Phone______________________________

Work Phone______________________________

OCT 11 1995

For Reference
Augustana University College
Library
Not to be taken from the library

Volume 25, Number 3 Fall 1995

ALBERTA NATURALIST

Alberta's Natural History Review

Photo: Peter A. Sulzle

Of Poorwills and Painted Turtles - It's a Small World - Bald Eagle Predation on Waterbirds
A Festival of Beavers - Changes of Spring Migration Arrival Dates in the County of Camrose
Alberta Issues - Equinox Ridgewalk - Floral Variations in Yellow Lady's-slipper
FAN Summer Field Trip - Book Review - Announcements

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CONTENTS

President's Page 43

Editor's Page 44

Of Poorwills and Painted Turtles: Encounters with Alberta Rarities in the Milk River Canyon, Michael S. Quinn 45

It's a Small World--An Essay on Insects, Don Hilton 49

Loran L. Goulden Memorial Award Nominations 50

Bald Eagle Predation on Waterbirds in Southwestern Alberta, Michael I. Preston 51

Alberta Issues 52

A Festival of Beavers, Peter A. Sulzle 54

Equinox Ridgewalk, Stephen Legault 55

Changes in Spring Migration Arrival Dates in the County of Camrose Since the First Half of the Century, Chet L. Olson 56

Floral Variations in Yellow Lady's-slipper, Natasha Klingsh 60

FAN Summer Field Trip, Lloyd Lohr 61

Book Review 62

Announcements 63

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Alberta T5J 2N5.

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Deadlines for FAN project reports are:
Alberta Christmas Bird Counts; January 30, Federation of Alberta Naturalists, Box 1472, Edmonton, AB T5J 2N5.
May Species Count for Birds and Mammals: July 15, Federation of Alberta Naturalists, Box 1472, Edmonton, AB T5J 2N5.
May Species Count-Plants: July 15, J. Derek Johnson, Northern Forestry Centre, 5320 - 122 St., Edmonton, AB T6H 3S5.

Compiler cooperation is greatly appreciated.

Honorary Member: Professor W. Ray Salt

Patron: Hon. Dr. J.W. Grant MacEwan

The Federation of Alberta Naturalists is composed of natural history clubs from across the province. The aims of the Federation are:

(a) To encourage among all Albertans, by all means possible, an increase in their knowledge of natural history and understanding of ecological processes;
(b) To promote an increase in the exchange of information and views between natural history clubs and societies in Alberta;
(c) To foster and assist in the formation of additional natural history clubs and societies in Alberta;
(d) To promote the establishment of natural areas and nature reserves, to conserve and protect species, communities or orther features of interest;
(e) To organize, or coordinate symposia, conferences, field meetings, nature camps, research and other activities whether of a similar or dissimilar nature;
(f) To provide the naturalists of Alberta with a forum in which questions relating to the conservation of the natural environment may be discussed, so that united positions can be developed on them, and to provide the means of translating these positions into appropriate actions.

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Editorial Disclaimer

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President's Page

Harvey Gardner

On August 23, 1995, FAN (along with Canadian Parks and Wilderness Society - CPAWS) announced its decision to participate on the Provincial Coordinating Committee (PCC) for Special Places 2000. This decision was taken by the FAN executive based on a written commitment made by the Hon. Ty Lund, Minister of Environmental Protection, that "legislation that precludes new industrial development will be the preferred tool to complete the protected areas system." We believe that the best use of our energy in the near future is in assisting the PCC to obtain changes in the legislation that will preclude industrial development in protected areas without unreasonable restrictions on activities that would not interfere with the area's ecological integrity (e.g., hunting, fishing, grazing). A verbal understanding was obtained from the Minister's office that the PCC would be consulted during rationalization of existing legislation.

All this is not to say that we do not have reservations about the Special Places 2000 process, or that we have no recollection of past disappointments. But simply it seems time to grasp the nettle and take an active part in the present effort.

The coalition of the three groups leading the PCC boycott has not broken up; it is realized that differences in style rather than objectives require that Alberta Wilderness Association (AWA) remain in a boycott position while FAN and CPAWS participate. The coalition is intact in terms of mutual support as well as information exchange. All three groups remain committed to the following:

1. That protected areas be recognized as wildlands legally set aside from industrial development, cultivation and off-road motorized use. Protection by policy alone is inadequate and tantamount to no protection at all.
2. That protected areas be explicitly legislated and managed to retain their natural landscapes and ecological integrity.
3. That the type of designation used be consistent with the spectrum defined in the Public Advisory Committee report.
4. That Special Places policy be implemented on par with other resource development policies and conservation policy initiatives.
5. That the PCC be charged with completing the protected areas network with its priority the goal of protection.
6. That implementation be based on scientifically sound information, and that mechanisms be used to ensure that candidate areas are not degraded by incompatible land uses while being assessed and awaiting final decision.

Maryhelen Posey, the Land Use chair, and I are planning to attend PCC meetings, possibly taking turns as alternates. Our efforts within the committee will have to be supported by lobbying by FAN and other members-at-large to ensure that PCC recommendations are not overridden or ignored (as has happened with the Environment Council and other advisory bodies) as a result of lobbying by anti-environmentalists.

* * *

In Memoria
Duncan Mackintosh

Duncan Mackintosh, of Lethbridge, winner of the 19th annual Loran L. Goulden Award (see the *AN,* Summer 1995), died on September 19, 1995, at the age of 65 years, after a courageous battle with cancer.

Since 1978, when he founded Mountain Bluebird Trails, Duncan was "Mr. Bluebird" in the Lethbridge area. In that time he helped many others become involved with bluebird trails, including groups in Montana and southeastern B.C. He also gave numerous presentations, coordinated Lethbridge area bluebird banders, organized several bluebird trail conferences, and published an annual newsletter up until 1994.

A quote from his last newsletter in 1994 shows the scope of the activities he coordinated: "46 trail sections were reported on. 31 monitor/banders checked 722 miles of trails within our 12,000 sq. miles of S.W. AB. During our 14 years of published data on bluebird conservation in our area, we've fledged 47,061 Mountain Bluebirds, and banded 32,787 of these."

In 1995, the administration of the July 5-7, 1996 bluebird trail conference was handed to Ray Harris and the banding coordination to Allan Kuzyk. Duncan still enjoyed getting out on his bluebird trail this year, and in one day banded 90 bluebirds.

Don Stiles

Editor's Page

From the Editor:

I was out at friends' near Drayton Valley midSeptember. The bluebirds, who had provided endless entertainment with their birdbath antics, were gone, as were the goldfinches, warblers and sparrows. A Short-eared Owl made an early evening appearance, however, and the Barn Swallows were still around. Out in the woods the crows were flocking and noisy, and there were the ever-present chickadees and Bluejays. Fall had arrived.

And with fall comes the celebration for FAN's 25th Anniversary, October 14 and 15, in Edmonton. Saturday, along with the Directors' meeting, there will be two field trips. In the morning, Harry Stelfox will lead a walk to explore the trails of the Whitemud Creek ravine. Then, in the afternoon, Peter Demulder will take people on a hike along the Sturgeon River in St. Albert's Red Willow Park.

In the evening will be a banquet with John Acorn as guest speaker and a silent auction (look for some exciting buys!), with both events at rustic Stone Creek House. On Sunday, we will have the opportunity to visit the Provincial Museum's new Carnosaur exhibit. So come and enjoy.

We are also beginning to work on the *AN* Special Anniversary Issue, and I look forward to reading more club histories. Look for the Special Issue in January 1996.

Also look for reviews of children's books on natural history and environment in upcoming *AN*s. Margot Hervieux of the Peace Parkland Naturalists has volunteered her time for this happy task.

In this issue we have a timely feature article on the Milk River by Michael Quinn and the first of four essays on insects by Don Hilton. Read also the results of Chet Olson's study of spring bird migration dates in the County of Camrose and about Bald Eagle predation on waterfowl (Michael Preston). Stephen Legault has an article about ridgewalking in the Rockies, which complements Jim Robertson's review of Mike Potter's *Hiking Lake Louise*. Natasha Klingsh discusses her work on orchids in the Wagner Natural Area and Lloyd Lohr describes the FAN summer field trip to Gooseberry Lake Provincial Park. Many thanks also to Peter Sulzle for his article and photos of the Whitemud Creek beavers, one of whom graces this issue's cover.

(My question is: why aren't the women out there writing articles? In the last three issues of the *AN* the ratio of male contributors to female was four to one!)

Best wishes for the fall season.

R. Edrea Daniel

What Was That!

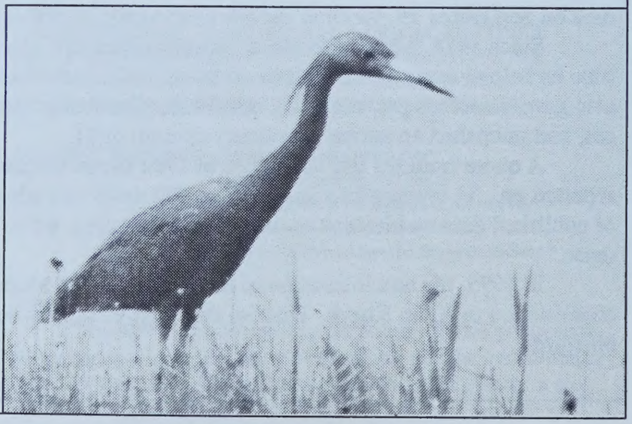
The June *Blue Jay* reported the first Black-throated Sparrow in Alberta, recorded by Thelma Lissel at Olds, May 28, 1994. The Little Blue Heron photo was taken by Fred Korbut at Ft. McMurray on June 29, 1995. This is only the second documented sighting in the province.

Helmut Ambeling of Drayton Valley reported a pair of Wood Ducks on the Brazeau Reservoir, May 19, and Debbie Galama of Edmonton, a single male at ForFar Park, about 35 km southwest of Athabasca on May 28.

The Grassland Naturalists had several "exciting sightings": a female Common Goldeneye with young, by Mark Oxamitny at Police Point, June 15; two male Hooded Mergansers at Etzikom Coulee and one female at Murray Lake by Phil Horch, June 13; two Northern Mockingbirds by Lorne Gould at Bindloss, May 28; two singing Tennessee Warblers at Police Point by Dennis Baresco, June 28-29; and two Indigo Buntings by Ben Velner north on Medicine Hat, June 18.

Ian Richards sent along some noteworthy sightings for the Red Deer area including a Great Egret by Rudy Kirst four miles east of Sylvan Lake, July 23; a Hudsonian Godwit by Jason Rogers at Gull Lake, August 4; A Red Knot, Semipalmated Sandpipers and Baird's Sandpipers by Ian Richards at Gull Lake, August 21; and a Black-throated Green Warbler by Jason Rogers at Gaetz Lakes Sanctuary on August 23.

The Calgary area provided some interesting records. A Rufous-necked Stint was recorded by Ray Wershler at Frank Lake on September 19; Olga Drapo recorded a Northern Parula at Inglewood Sanctuary; and Michael Harrison sighted a Black-throated Blue Warbler at the same location. Speaking of Calgary, the Calgary Field Naturalists Society is holding its 1st annual banquet October 28 at the Highwood Diningroom. Contact Howard Troughton for information.



Of Poorwills and Painted Turtles: Encounters with Alberta Rarities in the Milk River Canyon

Michael S. Quinn

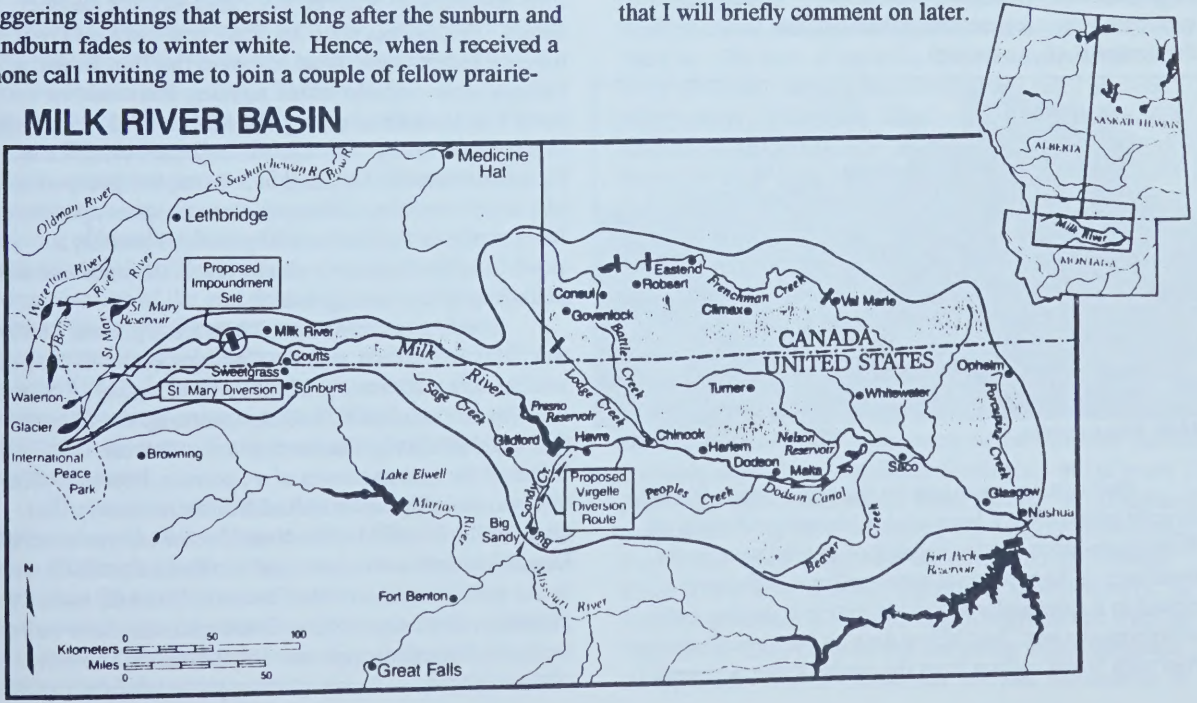
> *Out of this strange terrain, a crowded mosaic of interdependent life so different from that of the prairie, arose warblings, hums, rustlings, and unpredictable echoes. Hoots and shrieks animated the night, muted coos the shadowy hours of day. And whenever something stilled these sounds, clouds passing the moon, perhaps, or a rush of wind - or nothing nameable - the effect was breathless anticipation* (Barry 1991).

The Milk River Canyon of Alberta's "deep south" offers the opportunity for a naturalist to discover a world unlike any other in the province. The floral and faunal communities of this prairie wilderness are bizarre and wonderful--especially for those of us more familiar with the land of boreal spruce and moose.

I have travelled through the Milk River environs on several occasions, by different modes of transport, and in all four seasons. My favorite way to experience the beauty and riches of the inner canyon, however, is to paddle the river in late spring. A canoe allows you to slip into the lazy, loopy, meandering pace of the river. Travelling *with* the river means travelling on river time. The passage of hours and days becomes more aligned with the geologic pace with which the milky flow has incised the wide glacial plain. The view from the water also offers a glimpse of a time before European settlement carved the landscape into square sections and fenced the bison-big expanses. The naturalist-paddler is guaranteed a notebook full of memory-triggering sightings that persist long after the sunburn and windburn fades to winter white. Hence, when I received a phone call inviting me to join a couple of fellow prairie-philes for a paddle on the Milk, I leapt at the chance. This paper reports a few of the more notable encounters that we had on this trip in early June 1994. The most significant of these may be the singing of (breeding?) Common Poorwills (*Phalaenoptilis nuttallii*).

The Milk River owes its present name to the Lewis and Clark expedition. On May 8, 1805, Captain Meriwether Lewis recorded in his journal: "The water has peculiar whiteness, such as might be produced by a tablespoon full of milk in a dish of tea, and this circumstance induced us to call it Milk River" (Biddle 1962). Prior to Lewis and Clark, the river was known as *Kin-nax-is-sa-ta,* Little River, by the Blackfoot peoples.

Indifferent to what we may call it, the river has its origins in the mountains of Glacier National Park in northern Montana. Two main branches flow northward across the 49th parallel and converge west of the town of Milk River. The Milk River flows eastward across the bottom of the province for approximately 130 km and then dips back into Montana before reaching the Saskatchewan border. The Milk is part of the Missouri drainage and eventually empties into the Gulf of Mexico (see Wallis 1986 for a comprehensive biophysical analysis). Flow in the north fork of the Milk is supplemented by a diversion from the St. Mary River (which is actually a part of the South Saskatchewan drainage). Water that crosses an international boundary in a region that utilizes irrigation is prime fodder for political turmoil, but that is another story that I will briefly comment on later.


MILK RIVER BASIN
Medicine Hat
S Saskatchewan R
Bow R
Oldman River
Lethbridge
Waterton River
Belly River
St Mary River
St Mary Reservoir
Proposed Impoundment Site
Milk River
Milk River
Coutts
Sweetgrass
St Mary Diversion
Sunburst
Waterton
Glacier
International Peace Park
Browning
Lake Elwell
Marias River
Sage Creek
Fresno Reservoir
Gildford
Havre
Big Sandy
Big Sandy Cr
Proposed Virgelle Diversion Route
Fort Benton
Missouri River
Great Falls
Consul
Govenlock
Eastend
Robsart
Frenchman Creek
Climax
Val Marie
Battle Creek
Lodge Creek
CANADA
UNITED STATES
Turner
Whitewater
Opheim
Porcupine Creek
Chinook
Harlem
Nelson Reservoir
Dodson
Malta
Saco
Peoples Creek
Dodson Canal
Beaver Creek
Glasgow
Nashua
Fort Peck Reservoir
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Kilometers 0 50 100
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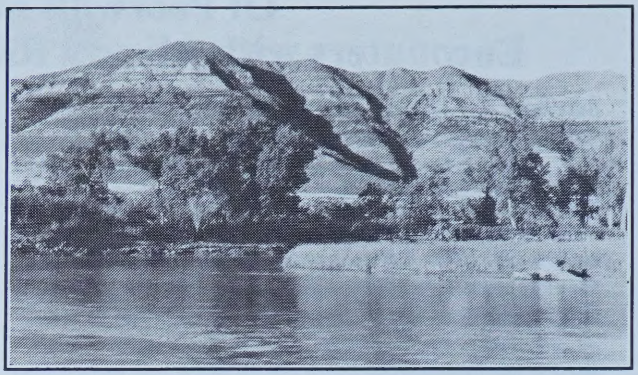
SASKATCHEWAN
ALBERTA
Milk River
MONTANA

Our trip began early on the afternoon of June 5th when we put our canoes in the river at the Pinhorn Grazing Station. My companions were Alex Drummond and Chris Fisher, both graduate students from the University of Alberta. Our launch had been delayed for a couple of days due to some mechanical difficulties with one of our vehicles. In the interim, we made the best of our time by exploring Humphry and Davis Coulees on the south bank of Writing-on-Stone Provincial Park. We were welcomed to the southland by a bevy of grassland emissaries that included yellow-bellied marmots, rattlesnakes, Long-billed Curlews and a glorious array of native grasses. Unfortunately, continuing logistical problems resulted in the fourth member of our party having to drop out. We eventually rearranged our gear and, after dousing ourselves liberally with sunscreen, we joined the spring flotsam on a five day journey that would take us down through the canyon and across into Montana.

Our misfortunes of the previous couple of days were quickly overshadowed as we met with Golden Eagles, Wood Ducks, Yellow-breasted Chats and a triad of beautiful dark elk within the first few hours. One of our late afternoon stops took us off the water and up into the heat of the hills. There are bands of ancient, exposed oyster beds high on the hills that are reminders of the time when this area lay beneath a shallow inland sea. While examining the oyster beds we witnessed large numbers of Violet Green and Bank Swallows landing on the hillside and apparently eating small shell fragments. A quick consultation of the literature did not yield any explanation of this behaviour or other records of it by Hirundines, although it has been suggested that calcium is a critical factor influencing the distribution of some gallinaceous birds, especially pheasants (Dale 1954). We suspect the swallows were supplementing their calcium intake to meet the demands of egg-laying.

Milk River terrain Photos: Mike Quinn

Our first campsite was on the north side of the river, directly across from a large coulee known unofficially as Writing-on-Stone Coulee because of its similarity to the landscape of the provincial park upstream. We were treated to a spectacular display of prairie lightning and a refreshing shower. Just before dark, at least two Common Poorwills began calling from the coulee above our camp. At first they seemed to be some distance away, but after a couple of minutes they were almost directly overhead and we could clearly hear the hiccough on the tail end of their namesake song. The birds continued to sing until it was fully dark. We did not hear them singing early the next morning and no others were heard on the trip. I have no doubt about the authenticity of this encounter owing to the singular uniqueness of the call.

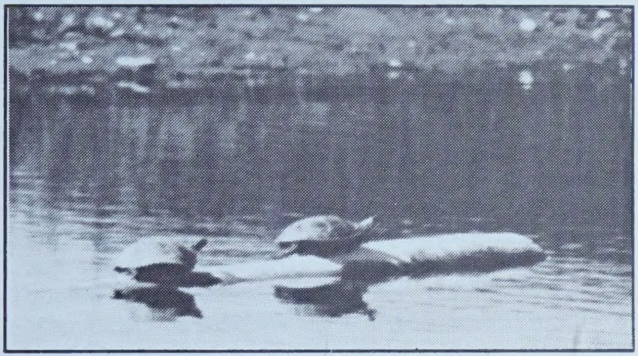


Milk River

Godfrey (1986) lists the Common Poorwill as breeding in the southern interior of B.C. as well as the Cypress Hills and the Great Sand Hills of Saskatchewan. Records of the Common Poorwill in Alberta go back at least as far as 1945 to a specimen reported by Salt and Wilk (1966) from the Cypress Hills area. Perhaps the most interesting record is that of a bird that overwintered as a captive on a farm near Lindberg, approximately 280 km northeast of Edmonton. This bird appeared on the doorstep in late October, was sheltered because of cold weather, and then released near Vernon, B.C. the following summer (Boag, 1972; Goulden 1972). Pinel and Riddell (1986) reported the first confirmed record of this bird from the Calgary area. Another recent sighting was made on the lower Red Deer River during the Alberta Bird Atlas Project (Semenchuk 1992). There is no confirmed evidence of Common Poorwills breeding in Alberta, but I suspect it is only a matter of time before someone happens upon a nest. Any attempt to confirm breeding status, however, is exacerbated by the cryptic patterning of the birds and the uniformity of the nesting habitat.

The Milk River is linked historically to the Lewis and Clark Expedition, and the Common Poorwill provides another connection to significant prairie history. It was on John James Audubon's 1843 expedition up the Missouri that a taxidermist by the name of John Graham Bell collected the first specimen of a Common Poorwill. The bird was already known to Audubon from descriptions given by his friend Thomas Nuttall some ten years earlier. Hence Audubon commemorated the fine naturalist's name in the specific epithet of the Common Poorwill, *nuttallii* (Mearns and Mearns 1992). These connections to earlier explorers through the species that they made known to science add tremendously to the enjoyment of the region.

One of our special interests on the trip was to seek out some of the many species of herpetofauna that call the Milk River basin their home. By Alberta standards, the Milk River region is exceptional in its variety of amphibian and reptile species with a total of 12 of Alberta's 18 herpetile species (5 amphibians, 5 snakes, 1 lizard and 1 turtle). It is also possible that two additional species could eventually be found along the Milk River: snapping turtle (*Chelydra serpentina*) and racer (*Coluber constrictor*) (Russell and Bauer 1993). Of particular interest to us were the five species that are rare and of special concern: western painted turtle (*Chrysemys picta*), plains hognose snake (*Heterodon nasicus*), eastern short-horned lizard (*Phrynosoma douglassii*), great plains toad (*Bufo cognatus*) and northern leopard frog (*Rana pipiens*). We made searches in the proper habitats and areas of previous sightings all along our journey. In the end, we saw only leopard frogs and painted turtles from this group of five most rare herpetiles.



Western painted turtles

In all we found only six northern leopard frogs in the five days that we were on the river. All of these frogs were near the southeastern end of the canyon and four of them were from one oxbow. This is in spite of many searches along the margins of oxbows and along the river proper. We also searched along small tributaries and hillside seepage areas where leopard frogs had been found on a previous trip. On a more positive note, we found evidence of breeding leopard frogs in the form of several hundred tadpoles. The tadpoles were positively identified by examination of the oral disc and jaw structure. The status of the leopard frog continues to be uncertain in Alberta since its rapid disappearance in the late 1970s (Roberts 1981). It is crucial that the few sites where it appears to be surviving and reproducing be monitored and protected in the hope of repopulation to its former ''locally abundant'' status.

The western painted turtles were located in an oxbow just north of the Canada-USA border. In fact, we had to double-check our maps and the boundary markers to ensure that the location was actually in Canada. The oxbow extends into Montana and the turtles evidently hold dual citizenship. There were two, large painted turtles sunning themselves on a partially submerged cottonwood log. We spotted the turtles from a safe distance and carefully glassed the entire oxbow for signs of any other individuals. After ascertaining that there were only two turtles visible, we made a slow approach of approximately 100 meters on hands and knees (much to the delight of hungry deer flies) to more closely observe and photograph the turtles. We were successful in obtaining good photographs of Alberta's only native turtle. One of the pair was very large and probably at the upper limit of carapace size for this species. It may be of concern that there are no reports of small turtles from this area. Obviously the population is in jeopardy if the existing turtles are not successfully reproducing.

In Alberta, the western painted turtle occurs naturally only on the Milk River and perhaps in the lower reaches of the Battle Creek in the Cypress Hills. There are other provincial records, but these are most likely from introductions (Banff, Lethbridge, Calgary, Edmonton, Grimshaw, Hines Creek). The Milk River population has been known since the early 1960s when Lewin (1963) reported turtles from an oxbow lake. There is a record of (introduced?) turtles at the mouth of Verdigris Coulee in 1967 and a few recorded sightings from the 1970s (Cottonwood Consultants 1986). Wershler (1988) performed a survey and habitat evaluation along the Milk River and, although he saw no turtles, a local resident reported seeing turtles in an oxbow in 1987 and in previous years. There are several high quality oxbow lakes for painted turtles in the lower Milk and it is critical that these locations and associated hydrological cycles be protected.

The greatest threat to the native biodiversity of the Milk River drainage is the alteration of the existing hydrological regime: flow quantity, quality and timing. The political and social history of water rights and usage on the Milk River is highly complex and promises to become more so. The flow of the Milk River makes Alberta and Montana both upstream and downstream users of each other's water. Water was initially diverted from the Milk River for irrigation in 1889 in Montana and shortly thereafter in Alberta. *The Boundary Waters Treaty* of 1909 (amended 1921) governs the shared water allocations between Alberta and Montana. Additionally, the Blackfeet and Belknap Reservations (Montana) have water rights that have not been exercised.

Historically, Alberta has ''underutilized'' its allocation and Montana has made more than full use of its appropriation with ''little reference to Canada's undeveloped share of the international waters'' (Wolfe 1992). There are approximately 800 water users on the Montana side that currently experience significant shortages 4 out of every 10 years. On the Alberta side, a small number of agricultural water users have been pressuring the Alberta Government for greater withdrawals from the river (and the Oldman River dam is testament to the power of such pressure). In 1980, the Province of Alberta began negotiations with the State of Montana to make full use of the water allocation. At the Border Waters Conference in 1986, the director of

Rocks at Milk River habitat

the Water Resources Planning Division for Alberta Environment stated that the "provincial government is now the proponent and is pursuing the possibility of storage, looking toward the federal government to cost share for regional economic development" (Simpson 1987). The result is a proposal for a 134,500 to 251,300 acre-feet storage reservoir upstream of the town of Milk River (Wolfe 1992). The Milk River is already stretched to the limit and such a proposal should be stridently opposed by Alberta naturalists lest this world-class wilderness be lost.

The undertaking of the proposed project would deal a severe blow to one of Alberta's most endangered habitats. Alteration to existing flow regimes have conclusively proven to be detrimental to prairie riparian ecosystem structure and function (Bradley and Smith 1986). The ecological integrity of this area should not be compromised to meet the unrealistic expectations of a few agricultural water users. The low and variable precipitation, seen as a limitation by agriculturalists, is vital to the existence of such rich and diverse grassland communities. As Stan Rowe (1990) reminds us, grasslands "demonstrate what it takes to survive and blossom in the rain shadow of the Rockies. We should be so smart." I believe we should consider Rowe's truism as a challenge. The very future of endangered prairie flora, fauna and habitats depends on it.

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It's a Small World--An Essay on Insects

Don Hilton

How do you spend each day? How much of each 24-hour period is spent at work, school, watching television, eating, sleeping? For most North Americans, no matter how time is apportioned, relatively little is devoted to natural history pursuits. This is extremely unfortunate because, in Andy Russell's words: "The watcher of animals whose interest goes beyond casual observation to a desire to uncover their secret lives finds that his interest never peaks, but continually increases. For the longer he looks, the more he is aware of how much is left to learn, and of how our lives are tied to the lives of animals in nature's intricate patterns. Though we are inclined to view mankind as vastly superior in every way, sometimes not even recognizing it as an animal species, we are inseparably a part of all living things on the face of this planet Earth" *(Andy Russell's Adventures With Wild Animals).* Andy Russell was writing about animals, but one could (and should) incorporate plants into his ideas concerning the salutary effects of nature observation.

It is vital that we be aware of the natural world around us and the manner in which this world is inextricably intertwined with our daily lives. Our environment has never been more threatened than at the present time. Acid rain, strip mining, industrial effluents, clearcutting of tropical forest, urban sprawl, overpopulation--these and other human-caused environmental problems all significantly degrade and change the natural world around us. We do not live in a cocoon sheltered and immune from what goes on outside our individual spheres of concern. For our own welfare, and that of the other living organisms with which we share our planet, we must constantly remember that: "It is a century now since Darwin gave us the first glimpse of the origin of species. We know now what was unknown to all the preceding caravan of generations: that men are only fellow-voyagers with other creatures in the odyssey of evolution. This new knowledge should have given us, by this time, a sense of kinship with fellow-creatures; a wish to live and let live; a sense of wonder over the magnitude and duration of the biotic enterprise" (Aldo Leopold, *A Sand County Almanac*).

Ever since I was a toddler, my own sense of wonder has been dominated by one group of organisms--the insects! I wholeheartedly endorse T.W. Harris' dictum: "...there is as much to be discovered and to astonish in magnifying an insect as a star" *(The New England Farmer).* I believe that close examination of these most wonderful creatures forces us to view life around us from a different perspective. For instance, birds are beautiful, fun to watch and easy for us to relate to in their feeding, nesting and mating behaviours. However, what about the ant you nearly stepped on as you left your home today and walked down the street? Was that a fortuitous or purposeful miss? How many of you think about what goes on in the body and life of that speck of an ant crawling over your sidewalk. Does it have a heart, an intestine, eyes? Does it breathe air like us and, if so, how and with what? By pondering such questions we come face-to-face with the fact that there is another world "out there" comprised of creatures that, although different in certain respects, are still living organisms dealing with the same daily problems connected with obtaining food, water, shelter, safety and the need to reproduce.

Professor Sir T.R.E. Southwood estimated that (as of 1978) there were 1,397,500 species of living organisms (not counting bacteria, viruses and their relatives). Of these, 792,500 (56.7 percent) were insects, 275,000 (19.7 percent) were flowering plants, 8,700 (0.62 percent) were birds and 4,060 (0.29 percent) were mammals. The number of species of birds and mammals is quite accurate and there probably aren't many kinds still unknown to science. This is especially true for birds, which tend to be colorful, easily seen and have been observed by legions of birdwatchers for a very long time. Mammals, being more secretive and cryptically colored, undoubtedly contain some undescribed species, particularly small forms in less well-travelled parts of the world. However, the just over three-quarters of a million species of insects are certainly far fewer that the actual number of species presently populating the earth. The figure of 792,500 refers only to ones already named, and estimates of those yet-to-be discovered and catalogued range from 2-10 million.

Earlier I asked how you spent each day. Since you are reading the *Alberta Naturalist* I'm assuming you are one of those fortunate individuals who enjoy natural history and would like to spend more time with living organisms. Consider the following: if it were possible to spend a 24-hour period observing organisms in proportion to their abundance (in terms of species, not individuals) then, using Southwood's estimates, insects should receive 13 hours 36 minutes, flowering plants 4 hours 42 minutes, and birds and mammals only 9 and 4 minutes, respectively, of your time. Put another way, the Trans-Canada Highway from Victoria, British Columbia to St. John's, Newfoundland is nearly 8,000 km long. If we could segregate all living organisms into their respective groups and arrange them along the Trans-Canada, during the entire 5,000 km drive from Victoria to Toronto only insects would be seen. Furthermore, each and every kilometer of this trip would have 172 different species arrayed along it. Think what an interesting drive that would be if each species were on a size scale equivalent to birds and mammals, and you could gaze out of your window to see a completely different kind of insect every 6 meters all the way from Victoria to Toronto. Assuming a typical highway driving speed of 100 km/hr (which works out to 27 m/sec.),this means you would see more than four new insects every second of your trip. A mind-boggling prospect! It is important to emphasize that differences between insect species can be as great, or greater, than those between a black bear and a beaver or between a Canada Goose and a Black-capped Chickadee.

My hope is that as you read through future essays in this series and become more aware of the fascinating aspects or insect natural history, you will feel as I do and be convinced of Henry David Thoreau's claim that: "Entomology extends the limits of being in a new direction, so that I walk in nature with a sense of greater space and freedom. It suggests, besides, that the universe is not rough-hewn, but perfect in its details. Nature will bear the closest inspection; she invites us to lay our eye level with the smallest leaf, and take an insect view of its plain. She has no interstices; every part is full of life" *(Natural History of Massachusetts)*. To our unaided eyes small size may seem to impose similarities upon these creatures, but the magnifying assistance of a hand lens or microscope demonstrates the existence of an astonishing diversity of colors, shapes, sizes and body adornments.

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Loran L. Goulden Memorial Award Nominations

Nominations for the Loran L. Goulden Memorial Award for outstanding contributions to natural history in Alberta are sought at all times, but to be considered for the 21st Annual Award they should reach the Chairman of the selection committee by December 1, 1995. The 21st award will be presented at the Annual General Meeting of the Federation of Alberta Naturalists in January 1996.

Nominations may be for contributions in any field of natural history within the province of Alberta. All previous nominations of persons who have not yet received the award will be considered, but nominators of such persons are encouraged to up-date these nominations. Previous Awardees have been: Dick Dekker, W. Ray Salt, Charles D. Bird, Robert Lister, Joy Finlay, John M. Powell, Lois Fenna, Martin McNicholl, Fred Schutz, George Freeman, Tim Myres, Kerry Wood, Marg Reine, Mary Lore, Lloyd Lohr, Cam Finlay, Myrna Pearman, Jack Park, Duncan Mackintosh and Beryl Hallworth.

Nominations should be sent in writing to the Chairman or given to another member of the committee (Lloyd Lohr, Stettler; Derek Johnson, Edmonton; Graeme Greenlee, Lethbridge; David Ealey, Chairman Loran L. Goulden Memorial Award Selection Committee, 3903 - 105 Street, Edmonton, Alberta T6J 2K7 (434-0841).

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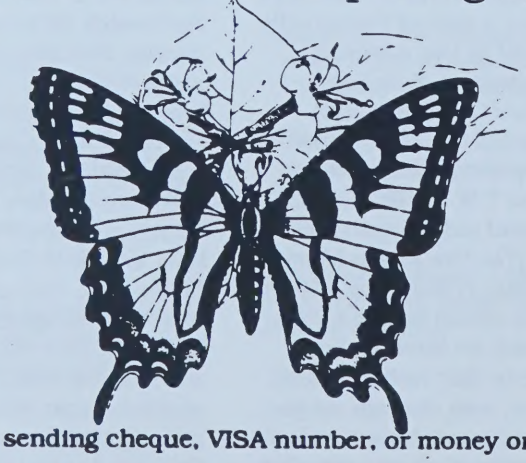

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Bald Eagle Predation on Waterbirds in Southwestern Alberta

Michael I. Preston

It is well known that the Bald Eagle *(Haliaeetus leucocephalus)* feeds principally on fish and carrion. Other components of its diet include waterfowl, seabirds and mammals of varying sizes (Palmer 1988). Less well known is the bird's diet regionally. The purpose of this article is to put on record three field observations of predation on waterbirds by the Bald Eagle in autumn and winter in southwestern Alberta.

On December 19, 1993, Greg Macdonald and I observed the successful capture of a healthy drake Mallard *(Anas platyrhynchos)* in flight over the Bow River in Calgary. While the Bald Eagle was perched in a nearby tree, a large flock of Mallards, seemingly uninterested in the eagle, foraged along the icy shoreline. When the eagle dropped from the tree branches, the flock of nearly 2,000 Mallards took flight.

The hunting tactics of the adult Bald Eagle appeared simple and to require little effort. The capture technique was that of two sharp, steeply banked drops of about 3 m each. These abrupt drops created an acceleration in speed and allowed for quick impact. When impact was not made after the first drop, the momentum carried the bird back up with a minimum loss of speed. The drop process was then repeated almost immediately after the bird regained a relatively horizontal balance. The point of impact after the second drop was on the back and lower neck area of the duck. The Mallard appeared to die almost instantly as was evident from its drooping head and neck.

On September 18, 1994, I observed an immature Bald Eagle make several unsuccessful attacks upon a small flock of Canada Geese *(Branta canadensis)* on the Bow River in Bow Valley Provincial Park. The eagle swooped rapidly, several times, from 6-12 m above the flock, in an attempt to encourage the geese to take flight. This behaviour lasted about five minutes after which the eagle departed. This predation activity has also been reported by Butler and Campbell (1987) at British Columbia's Fraser River delta.

The third observation of Bald Eagle predation on a waterbird occurred at the Lower Kananaskis Lake, in Peter Lougheed Provincial Park. On November 27, 1994, Lynn Vogt and I observed an adult Bald Eagle attack and kill a small grebe. The attack began with a high speed (50-70 km/hr), low altitude (approximately 4-6 m) approach with deep, powerful wingbeats. Three sudden drops were made (as described above), with the third resulting in actual capture. The point of impact was along the upper back and neck area of the prey. Immediately after the capture, the Bald Eagle continued its flight with the grebe in its talons. The eagle perched in a nearby spruce tree and consumed the grebe in about 15 minutes. Feathers were collected from the prey remains and sent to R. Wayne Campbell of British Columbia for analysis. He identified the species as an immature Eared Grebe *(Podiceps nigricollis)*. The observation of this species is also noteworthy because of its late occurrence in the mountain environment of southwestern Alberta. Previous records show the species usually departs from the prairie regions of the province by midOctober, with a few scattered late records in early November (Pinel et al 1991; Sadler and Myres 1976).

The significance of these observations is that they allow us to recognize the importance of waterfowl in the survival of wintering Bald Eagles in Alberta. During winter, open water typically exists only where human modifications have taken place. These changes allow concentrations of waterfowl to overwinter and provide a supplemental food source for the Bald Eagle. Fish, mammals and carrion likely make up a small portion of the eagle's wintering diet in the Calgary region, and waterfowl (primarily Mallard) probably make up the greatest component. Christmas bird counts (published annually in *American Birds*) provide estimates of 8 to 15 Bald Eagles and 12,000 to 22,000 waterfowl (of which up to 80 percent are Mallards) along the Bow River in Calgary. These figures, as well as field observations, support the likelihood of Bald Eagles attacks toward healthy and unhealthy waterfowl species in the Calgary area during winter.

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Michael I. Preston has been studying the avifauna of Bow Valley Provincial Park since 1992, and is planning to pursue a career in ornithology at the University of Calgary.

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Special Places 2000

In the past few months, since the announcement of a boycott of the Special Places 2000 process by the Federation of Alberta Naturalists (FAN), the Alberta Wilderness Association (AWA) and the Canadian Parks and Wilderness Society (CPAWS), there has been a tremendous amount of dialogue with the office of the Minister of Environmental Protection. This activity culminated in a letter from Minister Ty Lund, on August 14, 1995, which stated that ''existing legislation that precludes new industrial development will be the preferred tool to complete the protected areas system." In addition, the Minister indicated his willingness to legislate protection for sites through acceptance of the recommendations of the Provincial Coordinating Committee on the Upper Elbow-Sheep and Kakwa nominations.

As a result, on August 23, 1995, FAN and CPAWS announced their intention to serve on the Provincial Coordinating Committee (PCC) for Special Places 2000. Both groups remain concerned about several aspects of the Special Places 2000 policy and will continue to lobby the government for substantive improvements. FAN and CPAWS believe that it is best, over the short term, to concentrate their efforts on assisting the PCC in obtaining changes to existing legislation to preclude industrial development in protected areas.

AWA believes that, while there has been some movement in the right direction, the Alberta government has a long way to go to satisfy the requests made by environmentalists last March. It is concerned that there is a lack of legal protection for the Willmore Wilderness and many provincially and nationally significant areas. Although Mr. Lund has announced an intention, the government has not amended the Willmore Wilderness Act or put regulations or a moratorium in place to prevent industrial development in the Willmore and other proposed protected areas. AWA will devote its volunteer efforts to working with grass roots organizations to effect needed change.

FAN, CPAWS and AWA will continue to cooperate with one another and other organizations across Alberta. All three groups remain committed to the principles that precipitated the original boycott of the process.

Representatives from FAN attended their first PCC meeting on September 10 and 11, 1995. Most of this meeting was given over to informational presentations. World Wildlife Fund discussed the nature of ''a network of protected areas'' and the GAP analysis technique; the Nature Conservancy discussed private land initiatives; and Alberta Parks offered information on Parks Reservations currently on the books.

The Order-in-Council materials on the Upper Elbow-Sheep and the Kakwa are almost complete and will go to the Provincial Cabinet in the next four weeks. The changes to the Willmore Wilderness Act have been drafted and are ready for presentation to the Legislative Assembly at its fall sitting. Prairie Coulee, Ross Lake and Rumsey have been referred back to local committees for reconsideration in light of existing legislation. The Department of Agriculture, Food and Rural Development has been asked to take the lead role with the committees dealing with Ross Lake and Rumsey. The contentious issue in these areas relates to restrictions on grazing leases. In the case of Prairie Coulee, the issue is the recommendation of the local committee to allow new oil and gas development, in contravention of the act governing Ecological Reserves.

Other items included the formation of a subcommittee to look at existing legislation that would affect the PCC's work; making public the procedures for handling nominations; a request to the Forest Service and Fish and Wildlife for information on their respective land reservations and dispositions; and the decision to consider nominations from the Canadian Shield area in December.

Alpine Village Development in Kananaskis Country

Tundra Holdings Ltd. has proposed the development of a second alpine village. The concept is for a low density village on the north side of the Evans-Thomas Creek. The location was identified as "well suited for development" in an early study by Business Development and Tourism, and the development proposal is consistent with the original Kananaskis Country concept and policies, the Eastern Slopes Report and the Integrated Resource Plan. It is also compatible with the current golf course proposal. Tundra intends to apply for six, five acre sites, each accommodating fifty units. The village is to be self-contained with its own well, packaged sewerage plant, roads and utilities. FAN has been approached by the developer to review the details of the proposal and provide comments.

Express Pipelines

This pipeline, a 435 kilometer, 610-millimeter (24 inch) crude oil line from Hardisty to the international boundary at Wild Horse, is scheduled for hearings in late October. The hearings will be a joint effort of the National Energy Board and the Canadian Environmental Assessment Agency. FAN and the Alberta Wilderness Association have been awarded participant funding from the Canadian Environmental Assessment Agency. These funds are to be used to review information on the proposed pipeline, prepare a report and submit it to the joint CEAA\NEB panel, and participate in hearings conducted by the panel. The work will include: a review of relevant federal environmental legislation, policies and strategies and their implications for the proposed project; a review of literature dealing with the environmental impacts of pipelines; and an evaluation of the environmental assessment and mitigation plan, focusing on environmentally significant areas, rare and endangered species, and reclamation.

Athabasca River Sandhills Action Protection Plan

A series of public meetings was held in Edmonton, Barrhead and Fort Assiniboine to present a copy of the plan and allow presentations by representatives of the Department of Environmental Protection. The main area of contention is between the motorized recreational users and the non-motorized users. Both groups felt that the separation of users was the best way to manage the area and minimize conflicts. However, there was no common ground on what areas should be open to motorized use. It was also a common suggestion that development in this area be kept to a minimum with no large scale campgrounds, commercial or industrial development. At the subsequent meeting of the Public Advisory Committee, the majority of non-motorized groups were in favor of more stringent restrictions on all-terrain vehicles. The planning team will make final recommendations to the Minister of Environmental Protection, who makes the final decision.

Sunshine Ski Development

The environmental assessment panel reviewing the development of additional facilities at Sunshine Village, Banff National Park, has announced a delay in the scoping workshops that were to be held in midSeptember. The project referral by the Minister of Canadian Heritage and the appointment of the review panel by the Minister of the Environment are now subject to a judgement of the Federal Court. When this judgement is received the panel will announce a new schedule for the scoping workshops, which will deal with comments on the panel's Issues Discussion Paper and the identification of any additional information requirements necessary to enable the panel to proceed to the public hearings stage of its review. These workshops will not deal with any statements on the merits of the proposed development itself, but leave these to the public meetings. At the end of the scoping workshops the panel will determine if additional information on the project and potential environmental and socio-economic effects is required. If so, the panel will produce a list of additional requirements, and once it is determined that the information provided is adequate, the dates and locations of public hearings will be announced.

Smoky River Coal Limited

Smoky River Coal Limited is proposing an expansion of its surface mining operation in the Grande Cache area. As this is a mine extension, there are no changes required to the existing infrastructure. The project is within a Multiple Use Zone as designated by the *Policy for Resource Management of the Eastern Slopes - Revised 1984,* and within the boundaries of the Wild Kakwa Integrated Resource Planning area.

The proposed mine site is at elevations ranging from 1,300 to 2,130 m, and the prominent topographic feature of the area is Caw Ridge. The ridge comprises over 80 percent of the area to be mined. The project area supports a diversity of wildlife including bighorn sheep, caribou (which migrate through the area), goats, deer, moose, black bear and grizzly bear. The vegetation zones are predominantly alpine (tundra and scree) and subalpine (meadow and willow thickets) with a small portion of forest, mainly lodgepole pine and spruce.

The Final Terms of Reference for the Environmental Impact Assessment Report was issued by Alberta Environmental Protection in June 1995.

May Species Count Compiler for Birds and Mammals

Wanted - May Species Count Compiler for birds and mammals to collect data for the *Alberta Naturalist* Supplements. This is a once a year job that gives you an opportunity to interact with those people across the province who compile local May Species Counts. Access to a spreadsheet program is an asset; also knowledge of the distribution and identification of Alberta birds and mammals.

Curtis Pollock has been doing this work for the past two years, but has found his occupation as weekly newspaper editor has taken him to B.C. and Saskatchewan rather than Alberta, so he will be unable to continue.

This job is an opportunity for anyone who would like to help FAN, but also become more knowledgeable about the birds and mammals of the province and those who watch them and compile their records. For further information call Don Stiles 271-4690 or the FAN office at 453-8629.

A Festival of Beavers

Peter A. Sulzle

They remain elusive until the sun begins its quiet descent behind a stand of spruce. It is nearing 8 p.m.; air bubbles appear in the rippling waters and move in an easterly direction towards the lodge. I am anticipating some great photography as I sit motionless on the banks of the pond. My camera is loaded, poised and ready to shoot. Suddenly, head, eyes, ears and nose peek out from the murky depths. My "festival of beavers" has begun.

The light is perfect for photography at this time, and I spend 45 minutes enjoying the beavers as they go about their business of weaving and jamming branches into strategic places throughout the pond. Some are carried upstream, some down, and others placed in the dam or on the lodge.

The Whitemud Nature Reserve, located in south Edmonton, is a birder's paradise, day hiker's dream and, for me, a beaver watcher's extravaganza! If you're looking to get closer and in touch with nature, Whitemud Park is the place. I've often walked the trails in the area and always enjoyed the antics of the beavers. It didn't take long to realize that this was the spot for beaver watching.

Beavers influence lakes and rivers to meet their own needs. If an agreeable pond is not available, they will make one. Trees are cut, dragged to the water and pushed into place. Gaps and holes are filled with stone and mud. Only when the water level has risen to the height desired is a lodge built. Living space is made above water level and emergency or escape holes are made under. Occasionally, beavers will forget the lodge and simply dig holes in pond or stream banks.

In autumn, the beavers begin the harvest to get them through winter with an adequate food supply. They anchor bits of tree in underwater channels, leaving them jammed into the mud until needed.

I have experienced some amazing feats by the resident beavers at Whitemud, but one stands out clearly in my mind. One of the larger beavers studied a towering aspen and a regular trail it used to get back and forth to the water. It then proceeded to cut the aspen down. To my amazement, the top of the tree fell exactly on the beaten path made by the beavers. I was surprised that the critter could judge distance so accurately. This skill at felling, of course, made it easy for the beaver to bring his prize to the water.

During my beaver watch, the beavers generally pay little attention to me and my camera. At times I am within three feet of them. Without a doubt, the beavers of Whitemud are a true joy to experience. They are educational, entertaining and inspirational to any naturalist that visits them. Visit the beavers at the park, and you'll enjoy your very own, unforgettable "festival of beavers."

Peter Sulzle is a wildlife photographer and naturalist in the city of Edmonton.

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A beaver transporting a log at Whitemud Creek.

Photo: Peter A. Sulzle

Equinox Ridgewalk

Stephen Legault

I find holidays confusing. During the summer and fall I often lose track of which holiday is which. Is it Labour Day? I always seem to be working on Labour Day, so it must be. Park visitors will often ask what we're celebrating, and I am forced to give them a silly look, and say that Canadians don't really need a reason to take a day off. That seems to satisfy them. Me, too, for that matter.

However, I think there are events that occur throughout the year that deserve of a day of rest and celebration. Take the equinox, for example:

As usual, I have forgotten it is the equinox until it is too late to make more than a token gesture towards its significance. I set off for a walk about midmorning, hoping to escape the mayhem of the late summer/early fall tourist crowd, and to offer what I can towards this occasion.

I drive north on the Icefields Parkway until my odometer tells me I'm nearing a fall line I can use to reach a long, graceful alpine ridge: the southwestern shoulder of Mount Hector. Having studied the topographic sheet and consulted with friends, I know that one of several seasonal creeks running down the west slope of the ridge will give access to a saddle and then to the broad pitch of the alpine crest. I park the car and plunge into the woods.

In the fall of the year, most of the woody plants that make bushwhacking difficult in the spring have lost their resolve. They no longer seem intent on tripping, stabbing, pulling at my clothing, eyes, (etcetera). In an hour I have gained 2,000 feet and emerge into an open, larch forest at the base of the slopes that lead to the ridge.

In my headlong plunge through the forest, however, I have veered off to the north and ended up on a slope that leads into the vertical cliffs of Hector. I change course, then gain another 500 feet or so and rest on a grassy saddle. From here the Bow Valley is wide and gentle and bares the scars and debris of glaciation: U-shaped valley walls and a floor littered with moraines.

Next to me, the south peak of Hector's shoulder grows out of the ridge, blocky and unapproachable. Traversing below the peak, away from the staring face of Mount Hector, I come to the saddle that gives access to the crest and a view into the Pipestone River Valley.

From my vantage point the world seems a powerful and splendid place, and I am very small and very frail. Still the landscape does not push against me: rather it lends itself to my body and to my desire to move through undisturbed country. Far below are lakes at the head of an alpine meadow, and, farther away, Drummond Peak and Cyclone Mountain loom on the cloudless horizon. After some lunch I begin the ridgewalk

Three kilometers later I'm on the southernmost tip of Hector's elongated arm. It seems to reach out to grasp Lake Louise village, but falls just short--fingertips burned by the touch of growth and development.

Just below the ridge there is a small pocket of water nestled in a grove of larches; I drop a few hundred feet for a drink and for a view of Mount Richardson I will not forget.

I walk home on the western slopes of a bench paralleling the ridge, through some of the most pure and serene stands of larch I have ever seen. A game trail leads through the woods, golden light all around, and I stumble onto a creek that runs toward the highway. Coming to this creek is a spiritual event. I dunk my head into the water, cold and clear on a warm fall day, then follow it to the road.

Mount Hector Photo: Stephen Legault

It would seem that in our rush to accommodate the commodities of our hurried lives, we have journeyed a long way from the traditions and rituals that leave us with a feeling of connection with our landscape.

We are largely isolated by our constructions and our mental barriers from the sort of experience that leaves us connected with the land. When I tell people I'm going for a walk to celebrate the equinox, most of them ask "what's that?" There is precious little in our lives to prepare us for an encounter with the natural world. We are often left fumbling around with our emotions, seeking some understanding, but fall far short of our goals.

Historically, the fall equinox might have been spent in celebration of the bounty of the harvest and in preparation for the time of dormancy ahead. And, although I will admit to a certain sense of cynicism at this suggestion, I think a holiday honoring this period of time might be in order. How about a week or two at each of the earth's special alignments with the sun? Why not go big! I cannot understate the importance of these events in teaching us the weight of our affiliation with the land.

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Changes in Spring Migration Arrival Dates in the County of Camrose Since the First Half of the Century

Chet L. Olson

For the past 18 years, my wife and I have been keeping daily records of our bird observations in the County of Camrose in central Alberta, including the number of individuals of each species observed each day. These data over the years now provide some information about the typical abundance of each species at different times of the year and about migrant arrival and departure dates.

In the case of spring migration arrival dates, two sets of data from the first half of this century are available specifically for the Camrose area. Farley (1932) published a "table showing average date of arrival of spring birds in the vicinity of Camrose, Alberta, from 1907 to 1931" (p. 60), and Hohn (1988) submitted "observations from the files of Frank Farley and A.L. Wilk...spanning a period from 1909 to 1952, ...cover[ing] spring migration arrival dates of resident birds in the Camrose area" (p. 26).

The accompanying table presents comparative data for the period from 1978 to 1995. My wife Gail Hamilton and I made these observations in the southeast quadrant of the County of Camrose. Approximately 90 percent of the observations were made within an 8 km radius of our home, 20 km ESE of Camrose, that is, within a circle just barely encompassing Bawlf in the east and Ohaton in the west. The other 10 percent of the observations extended the study area to the City of Camrose in the northwest and to the Battle River valley, south of Kelsey and Rosalind, in the southeast. Apart from the wide, high-banked valley through which the Battle River meanders, the topography of the entire area is primarily parkland with mixed farming, poplar groves and scattered sloughs.

Table 1 uses the format YYMMDD and MMDD to give spring migration arrival dates in the Camrose area from the three sets of data referred to above: 1907-31, 1909-52 and 1978-95. Species are listed in order of the entry labelled "Change in the average," which compares the average arrival date in 1978-95 to the average arrival dates from the first half of the century. For example, the "-11 days" change for the Common Goldeneye (line 30 in Table 1) indicates that the April 1 average arrival date for 1978-95 is 11 days *earlier* than either of the average dates for 1907-31 and 1909-52 (April 18 and April 12), whereas the change of "+17 days" for the Western Meadowlark (line 138) indicates that the April 22 average for 1978-95 is 17 days *later* than either of the previous averages (April 1 and April 5).

The question mark in the "Change" column for the first 25 species in Table 1 indicates that the change cannot be quantified because these species appeared in neither the 1907-31 nor 1909-52 list of spring arrivals. However, a comparison of the 1978-95 data with Farley's (1932, pp.14-59) commentary on his 1907-31 observations suggests that the 12 that are asterisked may have increased in numbers in the Camrose area. In 1932, Farley characterized the White-fronted Goose (line 3) as "an irregular spring and fall migrant" that he did not observe in the County of Camrose until the fall of 1924, and he reported only one County observation each--in June, August, and October, respectively--for the Pied-billed Grebe (line 7), Stilt Sandpiper (line 10), and Hooded Merganser (line 12) and none for the other eight asterisked species.

The 27 species on lines 26-52 had average arrival dates in 1978-95 that were at least three days earlier than in both of the data sets from the first half of the century. Of these 27, the 9 species marked with a left-pointing caret (<) each showed a consistent trend over the three data sets, such that the average arrival date in 1978-95 was at least three days earlier than the 1909-52 average, which was in turn at least two days earlier than the 1907-31 average. The Ring-necked Duck (line 26) and Bald Eagle (line 27) showed particularly striking changes. In both cases, even the latest first arrival in 1978-95 (each species having been observed in at least six of those years) was earlier than the earliest record in 1909-52.

Two species that were omitted from Table 1 could also be thought of as arriving earlier than formerly. The Merlin in 1907-31 and European Starling in 1909-52 yielded average spring arrival dates of April 30 and March 26, respectively. However, in the 1978-95 data, the number of observations in January and February suggests that these species have become year-round residents of the Camrose area in sufficient numbers that it would be difficult to distinguish early spring arrivals from overwintering individuals.

Among the 49 species on lines 53-101 showing 0, 1 or 2 days change in the average arrival date, the 16 marked with an equal sign (=) showed the greatest stability over time in that the averages from all three data sets fell within a range of three days or less. Arguably the most consistent of these 16 in the 1978-95 data is the Clay-coloured Sparrow (line 83), first appearing most years during the week of May 10-16 and always between May 4-18.

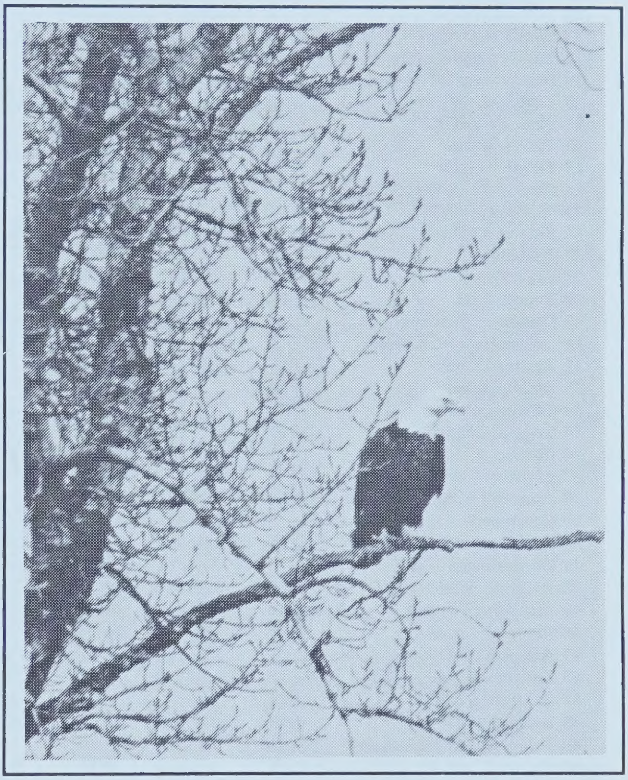
The last 40 species in Table 1 had average arrival dates in 1978-95 that were at least three days later than in both of the data sets from the first half of the century. Of these 40, the 13 species marked with a right-pointing caret (>) each showed a consistent trend over the three data sets, such that the average arrival date in 1978-95 was at least three days later than the 1909-52 average, which was in turn at least two days later than the 1907-31 average. For the American Bittern (line 141) and Brewer's Blackbird (line 134), even the earliest recorded arrival in 1978-95 (each species having been observed in at least six of those years) was later than the average dates in the first half of the century.

Another 26 species, omitted from Table 1, appeared in one or both of the 1907-31 and 1909-52 lists but yielded no positive spring observations in 1978-95. According to Farley (1932, pp. 14-59), these 26 species were all uncommon, rare or local in 1932, except as otherwise noted in the following list: Rusty Blackbird (abundant migrant), Brown Creeper, Ross' Goose, Bonaparte's Gull (abundant migrant), Herring Gull, Broad-winged Hawk, Belted Kingfisher, Chestnut-collared Longspur (nests regularly), Purple Martin (fairly common), Red-breasted Merganser, Ovenbird, American White Pelican, Black-bellied Plover (regular migrant), Upland Sandpiper, Loggerhead Shrike (common), Veery (rather common), Philadelphia Vireo, Solitary Vireo, Black-and-white Warbler (common migrant), Canada Warbler, Cape May Warbler, Chestnut-sided warbler, Magnolia Warbler, Wilson's Warbler, Marsh Wren and Common Yellowthroat (large numbers during migrations). For at least some of these species, the absence of spring records in 1978-95 no doubt reflects decreased abundance.

In considering possible reasons for the apparent changes across the three data sets, it is helpful to distinguish between observed arrival time and actual arrival time. Actual arrival time is known to be influenced, at least in some species, by weather, day length, availability of suitable nesting sites and food sources, and various physiological factors (Faaborg 1988, pp. 270-274).

Observed arrival time is influenced not only by actual arrival time, but also by whether the observer happens to be in the right place at the right time, and hence by species abundance, which determines how many right places and right times there are. With respect to the place, the three data sets being compared here undoubtedly differ in terms of the specific locations in the Camrose area frequented by the different observers. For example, Farley (1932) reported that "it has been the lake and river areas of which Camrose is the centre that have always been given the most attention. That portion of the Battle River valley immediately south of Camrose (including the Dried Meat Lake territory with its varied topography), Bittern Lake, Big Hay Lake and the three Miquelon Lakes, have been under close observation at all seasons of the year . . . " (p. 11). This is roughly the western half, and especially the northwest quadrant, of the County of Camrose, whereas the 1978-95 observations focused on the relatively "lakeless" southeast quadrant. However, such differences in observational locations do not seem to have been a major factor in the apparent changes in arrival dates noted above; if anything, for example, there are more waterbirds and shorebirds among the species arriving earlier in 1978-95 than among the species that arrived earlier in the older data sets.

With respect to species abundance, deWit and Biggs (1991) noted that "the chance of seeing a common species soon after it has arrived is very good. On the other hand, an uncommon species (for a particular locality) may have returned from its wintering ground for a week or more before it is seen by a birdwatcher . . . " (p. 11). Neither of the older data sets included quantitative information on abundance, but Farley (1932, pp. 14-59) included some relevant comments for each species. A comparison of these comments with the present author's quantitative records for 1978-95 suggests there are two species (Bald Eagle, line 27, and Barn Swallow, line 52) for which increased abundance in 1978-95 may have been a factor in their earlier observed arrivals in recent years, and 13 species (designated by the symbol # in lines 106-141 of Table 1) for which decreased abundance in the 1978-95 data may have been a factor in their later recorded arrivals in recent years.



Bald Eagle in Camrose area. Photo: Petr Mirejovsky

Even for equally abundant species, observed arrival times may be closer to actual arrival times for conspicuous or easily identified species than for species that are secretive or difficult to separate except at close range. For example, white-headed gull species (line 2) may be seen flying through Camrose County (1978-95 average = March 31) long before they can be identified as Ring-billed (April 18, line 74), California (May 4, line 136), or perhaps other gulls.

Notwithstanding such complications in interpretation, Table 1 reveals numerous interesting examples of both consistency and change in spring migration in the same area over the course of the century.

Table 1. Spring Migration Arrival Dates (YYMMDD) in the County of Camrose

		1907-31 (Farley)	1909-52 (Farley and Wilk)		1978-95 (Olson and Hamilton)						
	Species	Average	Earliest	Average	Change in the average	Earliest arrival	25% of years earlier than	Average (median)	75% of years earlier than	Latest arrival	Number of years
1	Redhead				?	92AP01	AP10	**AP22**	AP30	82MY23	17
2	White-headed gull spp.				?	94MR21	MR22	**MR31**	AP06	89MY19	16
3	White-fronted Goose*				?	92MR21	MR30	**AP04**	AP10	78AP18	15
4	Ruddy Duck				?	83AP17	AP24	**MY02**	MY18	81JE11	14
5	Ruby-throated Hummingbird				?	84MY19	MY27	**MY31**	JE10	82JE17	9
6	Pine Siskin				?	81MY16	MY21	**MY31**	JE13	94JE29	9
7	Pied-billed Grebe*				?	81AP26	AP29	**MY08**	MY11	84JE10	7
8	Golden Eagle				?	95MR14	MR15	**MR20**	MR24	87AP05	6
9	Long-billed Dowitcher				?	94MY05	MY05	**MY12**	MY12	91MY20	5
10	Stilt Sandpiper*				?	95MY12	MY14	**MY20**	MY23	87MY24	5
11	Cinnamon Teal*				?	92AP25	MY04	**MY11**	MY19	91MY31	5
12	Hooded Merganser*				?	93AP25		**MY16**		95MY17	3
13	Harris' Sparrow*				?	86MY03		**MY08**		94MY16	3
14	Hudsonian Godwit				?	93MY02		**MY09**		92MY16	2
15	Wood Duck*				?	90MY02		**MY02**		90MY02	1
16	Long-eared Owl				?	83MY16		**MY16**		83MY16	1
17	Baird's Sandpiper				?	95MY05		**MY05**		95MY05	1
18	Buff-breasted Sandpiper				?	92MY22		**MY22**		92MY22	1
19	Baird's Sparrow*				?	78MY20		**MY20**		78MY20	1
20	Lark Sparrow*				?	92MY23		**MY23**		92MY23	1
21	Black-necked Stilt*				?	91MY21		**MY21**		91MY21	1
22	Varied Thrush*				?	81AP19		**AP19**		81AP19	1
23	Turkey Vulture				?	93AP25		**AP25**		93AP25	1
24	Black-throated Green Warbler				?	91MY14		**MY14**		91MY14	1
25	Eurasian Wigeon*				?	95AP03		**AP03**		95AP03	1
26	Ring-necked Duck		37MY08	**MY10**	-29 days	92MR22	AP03	**AP11**	AP20	94AP24	6
27	Bald Eagle		28AP06	**AP15**	-19 days	94MR15	MR15	**MR27**	MR30	93AP04	7
28	Eared Grebe		33AP29	**MY10**	-18 days	93AP16	AP19	**AP22**	AP28	79MY14	8
29	Tundra Swan	**AP15**	18MR30	**AP15**	-12 days	92MR14	MR26	**AP03**	AP08	82AP26	16
30	Common Goldeneye<	**AP18**	26MR24	**AP12**	-11 days	92MR14	MR25	**AP01**	AP07	79AP22	13
31	Golden-crowned Kinglet	**AP15**			-10 days	87AP05		**AP05**		87AP05	1
32	Northern Pintail<	**AP15**	46MR25	**AP08**	-7 days	92MR13	MR23	**AP01**	AP05	82AP22	18
33	American Pipit	**AP28**	27AP25	**MY01**	-7 days	95AP21		**AP21**		95AP21	1
34	Canada Goose<	**AP01**	38MR10	**MR30**	-6 days	92MR03	MR18	**MR24**	MR29	79AP15	18
35	Red-tailed Hawk<	**AP10**	15MR24	**AP07**	-6 days	95MR22	MR29	**AP01**	AP06	81AP17	18
36	Dark-eyed Junco	**AP10**	41MR17	**AP10**	-6 days	92MR15	AP02	**AP04**	AP07	78AP20	17
37	Lincoln's Sparrow	**MY12**	38MY03	**MY16**	-6 days	89AP23	MY02	**MY06**	MY17	87JE05	7
38	American Avocet	**MY05**	34AP25	**MY10**	-5 days	95AP15	AP23	**AP30**	MY12	82MY30	12
39	Canvasback		41AP11	**AP25**	-5 days	95AP04	AP15	**AP20**	AP28	86MY18	15
40	American Robin	**AP05**	28MR22	**AP07**	-5 days	86MR15	MR23	**MR31**	AP04	82AP18	18
41	Green-winged Teal		37AP11	**AP23**	-5 days	94AP01	AP03	**AP18**	MY11	85JE16	18
42	Blackpoll Warbler	**MY18**	36MY16	**MY20**	-5 days	92MY12		**MY13**		95MY21	3
43	American Wigeon<	**AP18**	46AP06	**AP14**	-5 days	95MR16	AP02	**AP09**	AP17	80JE22	18
44	American Crow<	**AP01**	35MR04	**MR27**	-4 days	92FE29	MR19	**MR23**	MR25	87MR28	18
45	American Goldfinch<	**JE01**	24MY22	**MY28**	-4 days	92MY18	MY21	**MY24**	MY27	80JE19	17
46	Rose-breasted Grosbeak	**MY24**	26MY13	**MY24**	-4 days	79MY17		**MY20**		89MY21	3
47	Greater Yellowlegs<	**AP23**	41AP05	**AP20**	-4 days	94AP10	AP12	**AP16**	AP23	91AP28	4
48	American Coot	**AP20**	41AP11	**AP25**	-3 days	91AP03	AP16	**AP17**	AP27	88MY25	18
49	Yellow-bellied Sapsucker<	**MY10**	32AP23	**MY08**	-3 days	84AP29	MY02	**MY05**	MY08	91MY09	4
50	Northern Shoveler	**AP18**	25AP03	**AP23**	-3 days	94MR29	AP06	**AP15**	AP17	86AP27	18
51	Common Snipe	**AP28**	25AP16	**AP30**	-3 days	93AP15	AP23	**AP25**	MY04	82MY08	18
52	Barn Swallow		48MY03	**MY14**	-3 days	92AP28	MY07	**MY11**	MY13	82MY19	18
53	Mountain Bluebird	**AP01**	31FE21	**MR27**	-2 days	94MR12	MR21	**MR25**	AP05	82AP25	17
54	Mallard	**AP01**	14MR23	**AP03**	-2 days	92MR12	MR26	**MR30**	AP03	79AP15	18
55	Wilson's Phalarope		37AP28	**MY14**	-2 days	94MY02	MY07	**MY12**	MY27	86JE08	11
56	Least Sandpiper		37MY01	**MY09**	-2 days	94MY05		**MY07**		95MY07	3
57	Lesser Scaup		36AP11	**AP20**	-2 days	86MR23	AP15	**AP18**	MY04	78JE12	18
58	Chipping Sparrow=	**MY12**	48MY02	**MY13**	-2 days	92MY05	MY07	**MY10**	MY15	90JE12	17
59	White-crowned Sparrow=	**MY05**	37AP26	**MY06**	-2 days	92AP26	AP29	**MY03**	MY07	91MY15	15
60	Yellow-headed Blackbird	**MY01**	25AP30	**MY14**	-1 day	88AP18	AP26	**AP30**	MY06	84MY12	18
61	Marbled Godwit		34AP25	**MY02**	-1 day	92AP24	AP29	**MY01**	MY05	87JE07	17
62	Snow Goose=	**AP15**	25AP03	**AP15**	-1 day	95MR18	AP05	**AP14**	MY03	79MY08	12
63	Horned Lark	**AP10**	49FE18	**MR08**	-1 day	95FE22	MR02	**MR07**	MR18	81AP05	16
64	Northern Oriole=	**MY21**	26MY08	**MY20**	-1 day	91MY12	MY16	**MY19**	MY22	83JE03	18
65	Pectoral Sandpiper		25MY01	**MY09**	-1 day	95MY05	MY06	**MY08**	MY11	94MY13	4
66	Red-winged Blackbird=	**AP15**	31AP05	**AP17**	0 days	81AP09	AP14	**AP17**	AP21	79AP26	18
67	Bufflehead=	**AP18**	25AP04	**AP15**	0 days	92AP03	AP14	**AP18**	AP29	86MY18	12
68	Mourning Dove	**AP25**	52MY11	**MY18**	0 days	88AP29		**MY06**		83MY12	2
69	Purple Finch	**AP23**	32AP25	**MY05**	0 days	87AP15	AP22	**AP24**	AP28	79MY18	6
70	Least Flycatcher=	**MY16**	35MY03	**MY18**	0 days	95MY11	MY16	**MY18**	MY27	90JE24	11

See text for explanation of symbols.

Table continued on next page . . .

Table 1 (continued). Spring Migration Arrival Dates (YYMMDD) in the County of Camrose

		1907-31 (Farley)	1909-52 (Farley and Wilk)		1978-95 (Olson and Hamilton)						
	Species	Average	Earliest	Average	Change in the average	Earliest arrival	25% of years earlier than	Average (median)	75% of years earlier than	Latest arrival	Number of years
71	Gadwall		36AP17	**AP27**	0 days	93AP11	AP15	**AP27**	MY15	85JE16	13
72	Horned Grebe	**AP28**	26AP22	**MY07**	0 days	92AP16	AP20	**AP28**	MY02	78MY28	18
73	Red-necked Grebe=	**AP28**	38AP23	**AP30**	0 days	93AP13	AP22	**AP28**	MY18	91JE08	7
74	Ring-billed Gull	**AP18**	34AP02	**AP12**	0 days	91AP02	AP09	**AP18**	AP22	92AP24	4
75	Northern Harrier	**AP15**	45MR09	**AP04**	0 days	95MR18	MR27	**AP14**	AP20	79AP26	18
76	Rough-legged Hawk	**AP05**	36MR07	**MR28**	0 days	94MR20	AP02	**AP04**	AP12	91AP30	15
77	Ruby-crowned Kinglet	**AP23**	40AP28	**MY04**	0 days	89AP24	AP25	**AP29**	MY02	95MY06	5
78	Common Loon		32AP17	**AP25**	0 days	90AP16		**AP25**		95MY03	2
79	Common Nighthawk=	**MY24**	09MY22	**MY27**	0 days	88MY27		**MY27**		88MY27	1
80	Say's Phoebe=	**MY01**	27AP20	**MY04**	0 days	81AP27	MY01	**MY02**	MY17	78MY18	5
81	Semipalmated Plover		52AP27	**MY05**	0 days	91MY05		**MY05**		91MY05	1
82	American Tree Sparrow=	**AP01**	26MR16	**MR31**	0 days	90MR12	MR18	**MR31**	AP04	89AP23	17
83	Clay-coloured Sparrow=	**MY10**	37MY03	**MY12**	0 days	85MY04	MY10	**MY12**	MY16	79MY18	18
84	Fox Sparrow	**AP15**	38AP20	**MY10**	0 days	86AP14		**AP18**		92AP21	2
85	Savannah Sparrow=	**MY05**	50AP25	**MY05**	0 days	90AP24	AP29	**MY05**	MY08	86MY19	18
86	White-throated Sparrow	**MY05**	31MY02	**MY11**	0 days	87MY03	MY06	**MY09**	MY16	84MY18	13
87	Tree Swallow	**AP25**	24AP16	**MY03**	0 days	90AP22	AP27	**MY03**	MY08	82JE02	18
88	Western Tanager	**MY18**			0 days	93MY11		**MY18**		94MY18	3
89	Hermit Thrush	**MY01**	46AP28	**MY11**	0 days	78AP22		**MY07**		94MY11	3
90	Swainson's Thrush	**MY10**	37MY08	**MY14**	0 days	86MY05	MY09	**MY14**	MY19	83MY27	12
91	Yellow-rumped Warbler	**MY01**	39AP25	**MY08**	0 days	92AP29	MY02	**MY08**	MY12	79MY22	15
92	Lesser Yellowlegs	**AP20**	38AP15	**AP27**	0 days	91AP04	AP22	**AP27**	AP30	88MY08	12
93	Franklin's Gull=	**AP20**	19AP09	**AP20**	+1 day	78MR26	AP18	**AP21**	AP25	95MY04	18
94	Black Tern=	**MY20**	36MY11	**MY19**	+1 day	81AP26	MY15	**MY21**	MY22	86MY31	18
95	Lapland Longspur	**AP10**	46MR25	**AP08**	+2 days	92MR28	AP05	**AP12**	AP24	87MY17	12
96	Red-necked Phalarope		46MY01	**MY10**	+2 days	95MY12		**MY12**		95MY12	1
97	Solitary Sandpiper	**MY05**	48AP28	**MY07**	+2 days	95MY02	MY05	**MY09**	MY13	92MY17	4
98	Blue-winged Teal		19AP03	**AP25**	+2 days	79AP15	AP20	**AP27**	AP28	83MY08	18
99	Orange-crowned Warbler=	**MY10**	38MY01	**MY09**	+2 days	78MY01	MY06	**MY12**	MY17	79MY22	4
100	Yellow Warbler	**MY16**	26MY08	**MY14**	+2 days	93MY08	MY12	**MY18**	MY21	83MY31	15
101	House Wren	**MY18**	26MY09	**MY16**	+2 days	93MY12	MY17	**MY20**	MY23	80JE14	18
102	Sandhill Crane	**AP25**	15AP07	**AP24**	+3 days	92MR19	AP26	**AP28**	AP29	83MY05	15
103	Short-billed Dowitcher		46AP29	**MY07**	+3 days	94MY07		**MY10**		93MY23	3
104	American Kestrel	**AP15**	25MR28	**AP13**	+3 days	95AP09	AP15	**AP18**	AP23	84MY15	13
105	Killdeer	**AP05**			+3 days	95MR16	AP02	**AP08**	AP15	82AP25	18
106	Spotted Sandpiper>\#	**MY05**	31MY02	**MY11**	+3 days	94MY05	MY08	**MY14**	MY17	95MY18	6
107	Eastern Kingbird	**MY22**	25MY10	**MY20**	+4 days	92MY17	MY21	**MY26**	MY30	83JE27	18
108	Cedar Waxwing>	**JE01**	23MY25	**JE04**	+4 days	94MY25	JE04	**JE08**	JE13	78JE26	15
109	Common Grackle	**AP18**	25AP07	**AP18**	+5 days	94AP12	AP21	**AP23**	AP29	90JE16	17
110	Western Wood Pewee>\#	**MY16**	26MY11	**MY20**	+5 days	92MY17		**MY25**		81JE01	2
111	Eastern Phoebe>	**AP23**	41AP05	**AP25**	+5 days	91AP14	AP26	**AP30**	MY05	78JE22	12
112	Sprague's Pipit>	**MY12**	39MY02	**MY18**	+5 days	93MY23		**MY23**		93MY23	1
113	Warbling Vireo	**MY23**	25MY12	**MY22**	+5 days	94MY16	MY21	**MY28**	JE07	82JE12	13
114	Tennessee Warbler>\#	**MY10**	26MY08	**MY22**	+5 days	86MY19		**MY27**		87JE17	3
115	Brown-headed Cowbird	**MY05**	25AP08	**AP24**	+6 days	92MY03	MY09	**MY11**	MY14	85MY25	17
116	Sharp-shinned Hawk	**AP18**	25MR31	**AP17**	+6 days	93AP12	AP13	**AP24**	MY16	89JE02	8
117	Brown Thrasher		41MY17	**MY19**	+6 days	86MY20	MY23	**MY25**	MY25	94JE09	5
118	Northern Flicker>	**AP15**	25AP02	**AP19**	+7 days	91AP14	AP22	**AP26**	AP28	83MY05	18
119	Swainson's Hawk	**AP20**	25AP02	**AP18**	+7 days	90AP03	AP22	**AP27**	MY02	88MY22	18
120	Semipalmated Sandpiper\#		34AP25	**MY05**	+7 days	95MY07		**MY12**		92MY24	3
121	Song Sparrow>	**AP15**	25AP04	**AP17**	+7 days	81AP05	AP12	**AP24**	AP25	83MY06	18
122	Palm Warbler	**MY10**			+8 days	91MY15		**MY18**		95MY21	2
123	Sora	**MY10**	41MY01	**MY10**	+9 days	92MY07	MY17	**MY19**	JE02	88JE26	16
124	Vesper Sparrow	**MY01**	49AP23	**AP26**	+9 days	94AP27	MY01	**MY10**	MY19	85JE16	18
125	Willet	**AP30**	40AP17	**AP30**	+9 days	92AP27	MY01	**MY09**	MY27	81JE11	15
126	Gray Catbird	**MY28**	26MY16	**MY27**	+10 days	93MY23	JE03	**JE07**	JE10	92JE11	6
127	Western Grebe>\#	**AP28**	34AP21	**MY04**	+10 days	79MY14		**MY14**		79MY14	1
128	Red-breasted Nuthatch\#	**AP18**			+10 days	94AP27	AP27	**AP28**	MY16	78JE02	4
129	Lesser Golden Plover	**MY10**	38MY01	**MY10**	+10 days	94MY05	MY11	**MY20**	MY23	93MY23	4
130	Le Conte's Sparrow		39MY07	**MY20**	+11 days	90MY20		**MY31**		89JE11	2
131	Bank Swallow>\#	**MY10**	36MY07	**MY20**	+12 days	89JE01		**JE01**		89JE01	1
132	Cliff Swallow	**MY10**			+12 days	86MY18	MY19	**MY22**	MY28	90JE01	4
133	Whimbrel		38MY01	**MY13**	+12 days	92MY25		**MY25**		92MY25	1
134	Brewer's Blackbird\#	**AP20**	39AP03	**AP20**	+14 days	90AP26	AP30	**MY04**	MY15	84JE10	15
135	American Redstart\#	**MY12**			+14 days	78MY26		**MY26**		78MY26	1
136	California Gull	**AP18**			+16 days	95MR29		**MY04**		92JE09	2
137	Great Blue Heron	**AP23**	27AP07	**AP20**	+16 days	95AP12	AP20	**MY09**	MY22	89JE03	10
138	Western Meadowlark>\#	**AP01**	31MR06	**AP05**	+17 days	94MR26	AP13	**AP22**	AP30	83JE03	14
139	Alder Flycatcher>\#	**MY23**	23MY23	**MY25**	+18 days	92JE12		**JE12**		92JE12	1
140	Red-eyed Vireo\#	**MY28**	25MY14	**MY26**	+20 days	84JE09		**JE17**		82JE17	3
141	American Bittern>\#	**MY05**	49AP29	**MY13**	+21 days	92MY23	MY24	**JE03**	JE19	90JE30	7

See text for explanation of symbols.

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Chet Olson, a member of FAN, has been recording his bird observations in the County of Camrose since 1977.

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Floral Variations in Yellow Lady's-Slipper

Natasha Klingsh

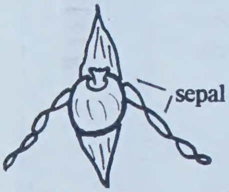
While working as a summer student at the Wagner Natural Area, just west of Edmonton, I spent much of my time observing populations of Yellow Lady's-slipper *(Cypripedium calceolus).* One population had approximately 300 plants and occurred in a mixed stand of balsam poplar and white spruce. Another population contained at least 800 plants and was scattered throughout a Canada buffaloberry patch.

I found a high degree of variation in the perianth (sepals and petals) of these plants. The variations included color, splitting and joining of the sepals, and shape of the slipper. Both environmental and genetic factors are likely associated with these variations.

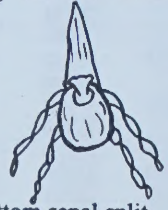
The observed differences in color included the following: sepals with a color range from pale green to dark brown; green or brown stripes on all four sepals; and spots on the lower sepal. The stripes and spots always form lines that lead toward the opening of the slipper. They may increase the plant's chance of getting pollinated because the lines and spots could serve to guide the insect to the opening of the slipper.

The differences in color among the sepals made some plants stand out from their neighbours. This conspicuousness could be an important adaptation for plants in the middle of a large cluster of orchids; the insect may travel the extra distance to visit the "showier" blossoms rather than the nearest plant. These variations could also produce an undesired effect--a pollinator may not be attracted to these "wrong" colors. Such variations were common throughout the populations I observed.

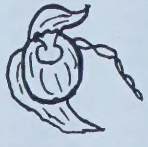
The difference in the number of sepals was also curious. Most plants had a bottom sepal that was either completely split in the middle or not split at all (the ratio was about 1:10). Only once did I find a compromise between the two characteristics: one blossom had a sepal split just halfway up the middle. Another plant had one side sepal completely joined to the bottom one. Some plants had only a top and a bottom sepal present. It suggests that either a gene is at work triggering an "all or nothing" reaction in the plant, or the cells responsible for joining the sepal were destroyed during their development.



Normal

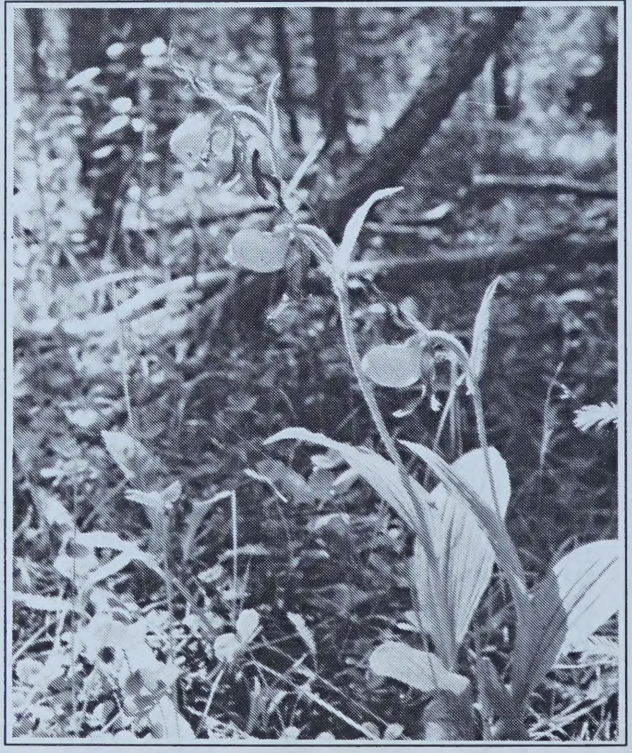


Bottom sepal split



Bottom and side sepal joined

I also found it interesting to note the differences in size and shape of the flowers. These differences were most noticeable in the slipper. Slippers varied as much as 10-20 mm in width and 15-30 mm in length. (Please note: these dimensions were not precisely measured.) The result was a wonderful collection of blossoms: short and fat, long and skinny, big and small. The different shapes allowed a wide variety of insects to be accommodated, whereas the unusual flowers could have attracted new pollinators.



Yellow Lady's-slipper. Photo: Natasha Klingsh

The last and perhaps most interesting variation was found in only one flower. The slipper looked as though someone had reached inside the opening and pulled it inside out. The result was bizarre. The slipper was approximately 4 mm in width and the opening was covered by the bottom sepal. Otherwise the plant appeared to be perfectly normal. A change like this is the kind that could lead to a new species: "...a marked change in the form or color of the lip could attract a new pollinator or cause an established pollinator to behave in different ways" (Dressler 1990).

Why is there such variation in the Yellow Lady's-slipper? Orchids are well known for their ability to evolve and mutate. Robert Dressler describes them as an "actively evolving group" with "highly specialized adaptations for attracting-deceiving, and manipulating insects for cross-pollination" (Dressler 1990). These adaptations explain why they have such a high proportion of species (about 10 percent) compared to other plant groups.

Another consideration is that of environmental factors. Spring in 1995 was unseasonably long and cold. Frost, observed in the Wagner Natural Area as late as June 9, 1995, probably destroyed some Lady's-slipper blossoms and presumably affected others. If just one or two cells were destroyed in the developing meristem, pieces of tissue that influence flower development could be lost. Perhaps the frost caused the widespread variation in the shape and number of sepals. No evidence of disease was noted on the plants.

Floral variations may result in new pollinators being attracted to the plants, which may add to the diversity of plant-animal interactions within the ecosystem. These interactions are among the forces that drive evolution. It will be interesting to see whether or not these variations show up next year. They could be found in both the present population and any new plants growing from seeds.

I would enjoy hearing from any readers who have similar observations about orchids.

Literature Cited:

Dressler, Robert L. *The orchids: natural history and classification.* 1990 edition. First Harvard University Press, USA.

Natasha Klingsh is a student at the University of Alberta who has been researching pollinators for several orchids in the Wagner Natural Area.

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FAN Summer Field Trip

Lloyd Lohr

A total of 30 FAN members and friends enjoyed sunny, warm weather at Gooseberry Lake Provincial Park on the weekend of August 18-20, 1995. Some stayed at B group camp and adjacent camp sites, some in Consort or with relatives, and a few just came for the day. Gentians and golden asters were in full flower.

The birding was excellent as the saskatoon berry crop was attracting Cedar Waxwings in flocks, as well as American Robins and Catbirds. Gooseberry Lake, a shallow, saline lake, was covered with resting and feeding Franklin's Gulls, 500+ Phalaropes (both Wilson's and Northern [Red-necked]), Eared Grebes and many ducks still in eclipse plumage. A few peeps, yellowlegs and plovers frequented the small, exposed beach area, and Sharp-shinned Hawks hunted through the trees. We recorded about 35 species of birds altogether.

On Saturday afternoon, Art and Helen Spencer, local residents and history buffs, led a convoy for over 130 kilometers around and through the Neutral Hills as far east as Sounding Lake. Stops were made at native stone effigies, and split stone cairns with engraved plaques marking such things as the Big Gap rodeo, the signing of Treaty #6, Neutral Hills history and the location of a RNWMP outpost. Much credit is due Art Spencer and his associates for marking and preserving these locations of local history and sharing them with us. A rest stop was made at the Spencers' well kept, attractive home at Red Ranch.

Saturday evening campfire entertainment was enlivened by Margrit Simon on accordion. A sing-song was assisted by Lloyd Lohr on guitar.

Sunday forenoon, after some birding and camp breakfast, most everybody gathered at the B group camp to meet Dylan and Colleen Biggs and their three little girls. Colleen was formerly executive director for CPAWS and is now a busy rancher, mother and homemaker. She gave a very interesting and informative explanation of their ranch operation, outlining their conservation and preservation procedures, plus their involvement in the Holistic Resource Management program and its incorporation into their ranch management. This was followed by questions and discussions with Colleen and Dylan.

By 4:00 p.m., everybody had left for home, hopefully with some new thoughts and ideas. I'm sure they also took with them a warm feeling of companionship from spending some time with old friends and making some new ones.

Lloyd Lohr is a member of the FAN Board of Directors and is an enthusiastic naturalist in the Stettler area.

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Book Review

Hiking Lake Louise

(2nd edition) by Mike Potter $9.95

Review by Jim Robertson

This summer, I made a dumb mistake. I tried to take a visitor from Poland to see Lake Louise. "That's a mistake?" you ask. Yup. As soon as I turned the car into the lot, I knew we were in trouble. Imagine how a fly feels when a Venus flytrap closes over it ... well, there we were. Two o'clock in the afternoon. Parking was, of course, impossible. Too many people, cars, buses, trailers and motorhomes. It took half an hour to escape from the lot, and stress levels were such that all we wanted was to flee to someplace sane. We drove to the first trailhead we could think of and went for a hike. An hour's walk into the bush, and all was right with the world again.

While I was glad we didn't have to face the hoards that were on the Lake Louise lakeshore out on our trail, I still wish that each and every person in those throngs of tourists had a good trail guide, and could have done what we did. They would leave with so much better an impression of our national parks!

Which guidebook, though? There are almost as many trail guides to the mountain parks as there are tourists. But, for people hiking the Lake Louise area, I'd recommend only one: Mike Potter's *Hiking Lake Louise*.

Potter, a Banff National Park interpreter, first released *Hiking Lake Louise* in 1990. Last year (1994), he released a revised second edition of the book. At just 126 pages, it isn't the biggest guidebook you can buy. Taller, thicker guidebooks are available, but they cover, in less detail, all the major trails from Waterton to Jasper. Who wants to carry a book like that with them on the trail!

Potter's book is, without a doubt, the most comprehensive book on the Lake Louise area. He has a companion book--*Back Country Banff*--dealing with the rest of that park. Potter also recommends other books, such as Gadd's *Handbook of the Canadian Rockies* and Alan Kane's *Scrambles in the Canadian Rockies,* for people needing background details or off-trail route information.

Lake Louise Photo: Ann Stefura

Hiking Lake Louise starts off with a general information section. Access, climate, park rules and resources, safety, equipment and even a thoughtful page on minimizing one's impact in the backcountry are included. The main part of the book deals with the various hiking areas in the Lake Louise vicinity: Moraine Lake, Lake Louise, Lake Louise Village, Paradise Valley, east of the village and "further afield" (Baker Creek and Taylor Lake to Herbert and Lost Lakes). Each trail has a brief description, with the usual elevation gain/loss, distances, directions, etc.

As Ben Gadd said in his introduction to the book in 1990, "there's a bit of Mike Potter on every page." Apart from its thoroughness, it is this personal touch that makes this book special. Reading it, you know that he was there, and that he knows what he's talking about. He watched the Northern Harriers quartering over a meadow near Skoki, searching for rodents to eat. He knows what a dog off-leash can do to a family of marmots at the Plain of Six Glaciers.

The 1994 edition has updated trail and access information, an eight-page section of beautiful color photos, and better cover photos than the original. At $9.95, it's a great deal. Get it, use it, and keep away from the Lake Louise parking lot on summer afternoons.

Oh, yes, the fellow from Poland eventually did get to see Lake Louise. My in-laws drove him there after supper, and he agreed it was very pretty. He liked our walk to Consolation Lake better, though.

Jim Robertson lived and worked in Banff and Lake Louise for many years and was a park naturalist and planner there from 1980-85. He is currently head of interpretation for Red Deer's urban park system, and director of the Kerry Wood Nature Centre, Gaetz Lakes Sanctuary and Fort Normandeau.

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Announcements

Forest - Fish Conference

You are cordially invited to attend the *Forest - Fish Conference: Land Management Practices Affecting Aquatic Ecosystems,* which will be held May 1-4, 1996 at the Marlborough Inn and Convention Centre in Calgary, Alberta.

The conference is being organized by a multi-agency Steering Committee that includes representation from the following stakeholder groups: Alberta Fish and Game Association, Alberta Forest Products Association, Alberta Lands and Forests Service, Alberta Fisheries Management Division, NOVA Gas Transmission Ltd., Sunpine Forest Products Ltd., Trout Unlimited Canada (Alberta Council), Woodlot Association of Alberta and the Department of Renewable Resources, University of Alberta.

The Steering Committee has undertaken the organization of the conference to

* facilitate the exchange of information concerning relationships between forest land-use activities and aquatic resources among an international assemblage of technical experts;

* increase awareness of management solutions that improve watershed protection and minimize the impacts of forest land-use activities on aquatic environments;

* increase opportunities for stakeholders to work together to find cooperative solutions to potential forestry-related problems;

* identify benefits, or ways and means of providing benefits, of forest management practices affecting aquatic resources; and

* publish the proceedings from the conference.

For information please contact Trout Unlimited Canada. P.O. Box 6270, Station D, Calgary, Alberta T2P 2C8.

Canadian Nature Federation Conference

In 1996, the Manitoba Naturalists Society will host the *Canadian Nature Federation Conference* in Winnipeg from August 15-18. The Conference will feature presentations, guest speakers, workshops, field trips, excursions (pre- and post-conference), displays and special events. There will be a chance to learn more about various aspects of natural history, what is being done to preserve and protect our natural world, and to go hiking, canoeing, birding, etc.

For information contact Letty Last, 1996 CNF Conference Chairperson, c/o Manitoba Naturalists Society, 401 - 63 Albert Street, Winnipeg, Maniboba R3B 1G4. Telephone: (204) 284-1863. FAX: c/o Dr. W.M. Last (204) 261-7581.

Environmental Awareness Week

Concordia College will be holding its annual *Environmental Awareness Week* January 22-26. This year the college wishes to broaden the concept of "environment" to cover as many aspects of biology, ecology and human/ animal health as it can. It is for this reason that it is extending an invitation across Alberta to absolutely everyone who wishes to speak, display or simply attend the event during the week. If you are a company involved with environmental concerns, a charitable organization, a student working on a masters thesis or just a curious person who has something to say, please contact the college by FAX or phone at the numbers below. The college will also be holding a research paper competition for university/ college science students.

For information contact Shayla Huber, CCSA Science Representative. Tel. 479-8481 ext. 572, FAX 477-3627.

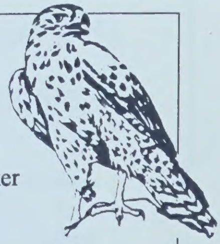
James L. Baillie Memorial Fund

Do you have plans for an individual or club project on birds that needs some extra funding? The *James L. Baillie Memorial Fund* may be able to help.

The Fund offers two types of grants: (1) for projects that involve research, or education, or that contribute to the preservation of Canadian birds; and (2) for a special 5-year program (1993-1997) to initiate and support migration monitoring stations (bird observatories) that monitor Canadian birds during their migrations. The Fund supports projects that involve volunteers in education, research or data collection. Individuals or organizations can apply. Grants range from $200 to $3,000 and average about $1,000. Next deadline for applications is 27 January 1996.

For more information and application forms write to: David J.T. Hussell, Secretary, James Baillie Memorial Fund, Canadian Centre for the Study and Preservation of Birds, P.O. Box 160, Port Rowan, Ontario N0E 1M0. Tel: 529-586-3531.

Environment Canada
presents
A Landowner's Guide
Prairie Raptors
by Geoffrey L. Holroyd, Ivan Shukster
Diane Keith and Laurie Hunt



A 49 page, comprehensive guide to the identification and conservation of eagles, hawks, owls, falcons and other birds of prey.

Available **free** from Communications Directorate/ Canadian Wildlife Service, Environment Canada, Twin Atria Bldg., Room 200, 4999 - 98 Avenue, Edmonton, AB T6B 2X3.

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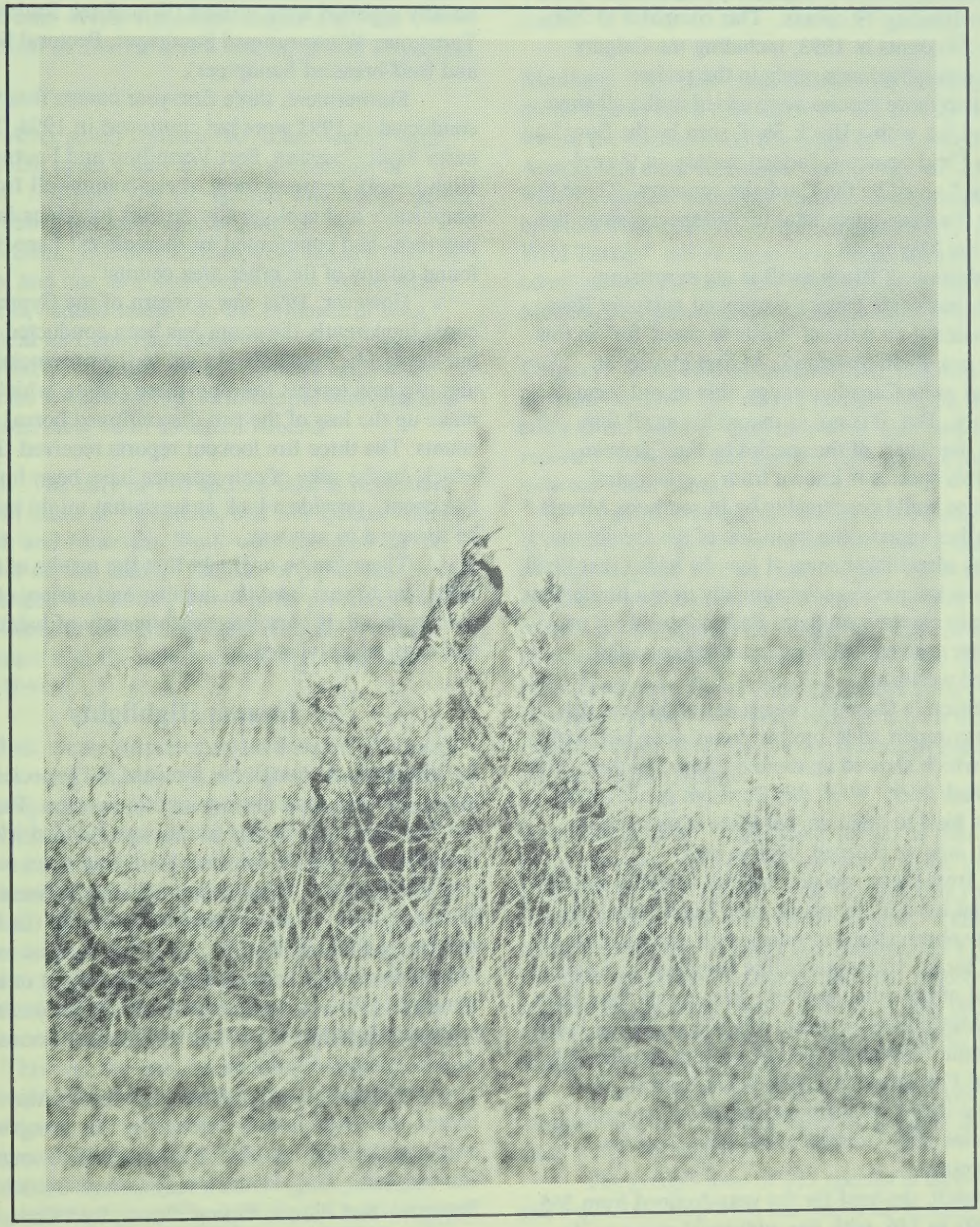
1994 May Species Count for Birds and Mammals



Western Meadowlark

Photo: Petr Mirejovsky

1994 May Species Count for Birds and Mammals: The Birds

Curtis Pollock

Once again it's late, but once again it was worth the wait. There were surprises, new records and exciting observations on both the bird and mammal counts in 1994.

For starters, the 19th annual May species count conducted by the Federation of Alberta Naturalists (FAN) had an all-time high number of participants with 307 observers contributing 19 counts. This compares to 294 observers on 20 counts in 1993, including the Calgary count which was tallied separately in the review.

And, two more species were added to the all-time count day bird list with a Black Swift seen by the Bow Kan birders and a Field Sparrow, "added mainly on the evidence of song," noted by the Cardston counters. These two records raise the cumulative total to 303 species since the inception of the May count.

The addition of Black Swift is not surprising; indeed, three years ago, former provincial compiler Ross Dickson included it on a list of "birds to watch for" in this regard. But, um, Field Sparrow? At first glance, or perhaps a look at its Canadian range, this record seems highly unlikely. But it is not as incredible as all that. As was noted in the report of the species by the Cardston compiler "...this species is known from north-central Montana and so could conceivably be in southern Alberta."

To further support the inclusion of the species on the basis of its identifiable song, it may be added that Field Sparrow is now known to occur annually over a limited but regular range in extreme southern Saskatchewan. It may well be another species steadily expanding its range northward and westward.

In addition to these two count day additions, the Fort McMurray report adds another count week bird with a Mute Swan, which showed up there on June 2 and was still lingering a week later. What this Eurasian species was doing there is hard to imagine, but there is no reason to believe that it was an escaped, captive bird.

Apart from these two new species added to the all-time provincial list and the count week Mute Swan, there were very few observations of uncommon, extralimital or "hard to get" birds. No vagrants like Garganey or Eurasian Wigeon, none of the other southern species that have been recorded on May counts in recent years (e.g., White-faced Ibis or Mountain Plover), or the few eastern species such as Great Crested Flycatcher or Black-billed Cuckoo were recorded. The variety of warblers was down; several montane species were "missed"; and there were few lingering migrants.

As a result, the total for the year dropped from 265 species in 1993 to 246, with one additional count week record (Palm Warbler). This compares to 240 species in 1990, 258 in 1991 and 252 in 1992.

The 1994 count was also affected by the absence of a Beaverhill report, for in previous years the count at this location was always sure to include a wide variety of shorebirds not often found in the other areas contributing May count records. This void was partially filled by the Calgary and Lethbridge groups finding a good variety of sandpipers and related species, but at least five species usually reported were missed (Whimbrel, Ruddy Turnstone, White-rumped Sandpiper, Pectoral Sandpiper and Buff-breasted Sandpiper).

Furthermore, three first-year counts that were conducted in 1993 were not continued in 1994 (Saskatchewan River Crossing, Fort Vermilion and Footner Lake/High Level); between them, these counts--all from geographically and ecologically distinct locations in the province--had contributed an incredible 13 species not found on any of the other area counts!

However, 1994 saw a return of the Cypress Hills count (apparently the count has been conducted annually but the results didn't always get to the provincial compiler), and two new reports from northern points, which helped make up the loss of the two discontinued boreal region counts. The three fire lookout reports received this year, which for the sake of convenience have been lumped as one count, provide a look at areas that might not otherwise be surveyed in any way.

There can be no doubt that the results of the count from year to year, and the number and variety of bird species found, is correlated with variety of habitat types and ecosystems visited.

Counts Highlights

Lethbridge: Although not a record, 147 species is well above the long-term average of 125 species. Recorded for the first time ever on this count were Hooded Merganser, Rough-legged Hawk, Virginia Rail, Red Knot and Golden-crowned Kinglet. Other species of interest were the large flock of Golden Plover at Stirling Lake and the large number of Black-bellied Plover (from various locations). On the down side, some species were absent or in low numbers: only one each of Pied-billed Grebe and Black-crowned Night Heron, and no nighthawks, loons or Yellow-rumped Warblers.

Although not a provincial first-ever May count record, the Virginia Rail notched by this group was the only one reported in 1994. The Lethbridge count also came up with the province's only Lesser Golden Plover, Semipalmated Plover, Piping Plover, Red Knot, Sanderling and Caspian Tern.

A pair of Chukar was also recorded, the second consecutive year this species was found on the May count, but these are thought to have originated from the birds released in the area in 1990s and thus are still not "countable" as a feral species.

Waterton: On this count 99 species were tallied, somewhat higher than the long-term average of 94. Only one new species was added to the all-time May count list for this group, with a Bald Eagle seen scavenging along the Waterton River.

This count provided the province's only Black-headed Grosbeak and Cassin's Finch, and one of only two records of Winter Wren, American Dipper and Pine Grosbeak. Also of interest was a nesting pair of Trumpeter Swans.

Cardston: After seven consecutive record-setting years, this count failed to set a new high for the number of species seen. However, the 100 species which were tallied is still well above the long-term average of 78.

In addition, five new species were added to the list for this area, and one as a first-ever Alberta record with Field Sparrow, "added mainly on the evidence of song." While a look at its Canadian distribution might suggest this record is unlikely, compiler Teresa Dolman notes that "...this species is known from north-central Montana and so could conceivably be in southern Alberta."

Claresholm: The tally of 110 species seen is well above the long-term mean of 95 species, and two species--Rough-legged Hawk and American Pipit--were recorded for the first time ever on this count. The pair of pipits seen by this group constituted one of only two reports province-wide, as was also the case with Sharp-tailed Grouse. Furthermore, this count had the only Pacific-slope Flycatcher reported in 1994.

Medicine Hat: Some surprises awaited Dennis Baresco's group when it went out May 29, with this count's first-ever Pileated Woodpecker and Olive-sided Flycatcher. Both are woodland birds, to be expected in boreal or montane biomes but not at Medicine Hat; nonetheless, both were positively identified by count participants ("No mistake, it was a Pileated. What it's doing here is anybody's guess, but it's here nonetheless," said Dennis of the woodpecker.)

Another highlight was seeing six Red Crossbills in his backyard, of which two were adults and at least three of the other four immatures, and one of the adults fed one of the young! This was the only count day report of the species in the province, along with one count week report from Lethbridge.

This count also had the only Rusty Blackbirds (a pair) and contributed one of only two records province-wide for four other species: Wood Duck, Turkey Vulture, Sharp-tailed Grouse, Yellow-breasted Chat and Brewer's Sparrow.

A number of passerine species were seen in record numbers, while Ruddy Ducks were down considerably, as were Common Terns and especially Franklin's Gulls. And, "oddly, not a single species of grebe was seen, the first time since 1987."

Cypress Hills: Although a single Lapland Longspur was reported from this count, there is a strong likelihood that it was a misidentified Chestnut-collared Longspur. Otherwise, this was one of only two counts around the province to record Turkey Vulture (two) and Wild Turkey (three). Twenty-eight Dusky Flycatchers was a provincial high count.

Bindloss: This now-established count recorded 84 species, down slightly from last year's 89, but still an excellent tally within the restricted habitat range in this unique area. Among this total were numerous dry upland species not widely reported, including Upland Sandpiper, Yellow-breasted Chat and McCown's Longspur (37!), as well as a Wild Turkey! All of these were found on only one other count, as was the case, too, with the count week Northern Mockingbird recorded by the Bindloss team of June 2.

Calgary: With 168 species recorded, this count was well up from the 1993 tally of 111 and provided a substantial boost to the numbers province-wide with five species not reported elsewhere and another nine species shared with only one other count.

A single Red-breasted Merganser found at Wyndham-Carseland Provincial Park was a notable entry, as was Peregrine Falcon. The Calgary team came through especially with shorebirds, providing the province's only records for Semipalmated Sandpiper, Stilt Sandpiper and Red-necked Phalarope, and one of only two records for Least Sandpiper, Baird's Sandpiper and Long-billed Dowitcher as well as Wood Duck, Northern Goshawk, Forster's Tern, Great Gray Owl, American Pipit and Black-throated Green Warbler.

Bow/Kananaskis: It was just a matter of time before one of the montane counts came up with a Black Swift, and the Bow Kan Birders' Society came through this year with the first-ever May count tally for the species. They also had the only count day Barred Owl, Hammond's Flycatcher and Northern Mockingbird (one other count reported a mockingbird during count week), and one of just two reports of Harlequin Duck (with eight!), Spruce Grouse, American Dipper and Black-and-white Warbler.

Also reported by the Bow Kan counters were four Yellow Rails, but compiler Janet E. Rodgers indicates that these were "not verified."

The group's total of 123 species is an excellent tally, and a quantum leap from last year's 82 species.

Yamnuska (including Canmore-Wind Ridge): This count by the Bow Valley Naturalists totalled 80 species, 66 in the once separate Yamnuska tally and an additional 14 species in the Canmore-Wind Ridge segment (formerly totalled with the Banff-Lake Louise figures).

The solitary Greater Yellowlegs seen by this group was one of only two reports province-wide. They also had Dusky Flycatcher and, at Canmore, all three species of chickadee.

Banff National Park: This long-established count conducted by the Bow Valley Naturalists formerly covered areas outside the park boundaries as well but, as compiler Mike McIvor says, "Now that the Bow Kan Birders are active in the Corridor, it will make sense for us to do a separate compilation for the Banff-Lake Louise area of the park."

Within the park limits the group came up with 79 species including Harlequin Duck (once again, one of only two counts recording it), and the only Clark's Nutcracker province-wide.

Red Deer: Red Deer's total of 121 species very nearly matched last year's 123, and once again this count put up some big numbers (140 Red-necked Grebes, 314 Black Terns). Its lone Bobolink was the only one found around the province, and Northern Hawk-owl was also a sole report. Provincial high counts were reported for Philadelphia Vireo (8) and Purple Finch (12).

Buffalo Lake: This central Alberta count had 109 species, well up from the 88 reported in 1993. Highlights included a provincial high count of 19 Black-crowned Night Herons and a "Harlan's" Red-tail.

Lamont/Two Hills: As always, this count picked up some eastern species not recorded elsewhere in the province. This year they notched the only Sedge Wren and Mourning Warbler (two) anywhere and had one of only two records of Short-billed Dowitcher (six). High species counts were 256 Double-crested Cormorants and 400 Black Terns.

Athabasca: With 93 species, this count was well up from 1993 when 74 was the total. Once again, four species of vireos were recorded, although there was a reduction in both the numbers and variety of warbler species.

Wembley/Grande Prairie: This duo recorded a total of 82 species, down from last year's 115, but once again it contributed some singular sightings including the province's only reports of Surf Scoter (10) and Mew Gull (50). "Horned and Long-eared Owls and Marsh, Red-tailed and Cooper's Hawks all have nests here (NW 5-72-7 W6)," they report.

Fort McMurray: This count, in its second year after getting re-established, increased its tally from 67 to 80 species and noted three species not found elsewhere in the province: one Herring Gull, two Mourning Warblers and no fewer than ten Canada Warblers! Other highlights were a Spruce Grouse, five Greater Yellowlegs, eight Black-throated Green Warblers and eight Black-and-white Warblers (all one of two records province-wide).

Bear Lake/Saskatoon Mountain: This new count got on the board quickly with the only record province-wide for Northern Saw-whet Owl and one of just two for Northern Goshawk. Other highlights were a Three-toed Woodpecker and five Swamp Sparrows.

Fire Lookouts: The observers at these isolated locations, members of the Bow Kan Birders' Society, tallied a combined 37 species in their first year of reporting. Their five Boreal Owls (four at Deer Mountain and one at Goose Mountain) provided the only provincial record for the species in 1994, plus they had one of only two sightings of Winter Wren and Pine Grosbeak. "Varied Thrush returned after three years absence," they note. "First year of six years on tower to hear the Common Loon at the tower."

Count Details:

Participants, areas covered, team hours, distance and weather, if given

Lethbridge: May 29-30. Compiler: Teresa Dolman, 37 Carleton Road W., Lethbridge, Alberta T1K 3X4. Participants: Lloyd & Bruce Bennett, David Bly, Bill & Anne Brown, Doug Dolman, Maria Geppert, Witold & Andrew Gierulski, Connie Goodall, Victor & Marilyn Hafichuk, Betty Haig, Bob Hall, George & Betty Luco, Jennifer & Lyn Mather, Lois McKillop, Ross Monro, Laure & Emile Neish, Ken Peddie, Sheila Petherbridge, Doris Rhodes, Hazel & Gordon Ross, Katharine, Frank & Alex Russell, Bill Sharp, Mike Spenser, Mary Thomson, Joyce, Jessica & Paul Wilkinson.
Areas covered: Six-mile and Sugarbowl Coulees; Mountain View Cemetery; Henderson Lake Park; Alexander Wilderness Park; Pavan Park; Peenaquim Park; Liz Hall Wetlands; Lethbridge Nature Reserve; Animal Diseases Research Centre; Keho Lake; Park Lake and Taber Provincial Parks; Ridge, Taber, Chin, Fincastle & Horsefly Reservoirs; Lost Lake; Purple Springs Sandhills; Taber and Vauxhall area; Moon River Estates; Ft. Macleod Riverside Park; Raymond Lake; Magrath Park; Rollingson & Luco river bottoms; Stirling Lake; Tyrrell Lake; St. Mary & Oldman River junction; Pothole Creek area; Russell ranch.
Team hours: By vehicle, 37.5; by foot, 69.5.
Team distance: By vehicle,, 831 km; by foot, 88 km.
Weather: May 28, 19C, wind SW 20, no precipitation; May 29, 18C, wind SW 30-73, no precipitation.

Waterton: June 4-5. Compiler: Teresa Dolman. Participants: Betty Haig, Witold Gierulski, Lois McKillop, Doris Rhodes, Gordon & Hazel Ross, Bill Sharp, Shirley Sillito.
Areas covered: Road from town to entrance, Belly River

road and campground, buffalo paddocks, Bertha Lake trail, Red Rock road, townsite, Cameron Lake road, Linnett Lake, horse stable and Hay Barn picnic sites, sewage lagoon.
Team hours: By vehicle, 22; by foot 20.
Team distance: By vehicle, 176 km; by foot, 20 km.
Weather: June 4, 7-16C, wind SW 13, 5mm rain; June 5, 7-21C, SW 12-40, traces of rain.

Cardston: May 28-29. Compiler: Shirley Sillito, Box 1102, Cardston, Alberta T0K 0K0. Participants: Fay Clawson, Barbara & Rita Scotter, Wendel Shaw, Shirley Sillito, Barbara & Lynn Sommerfeldt.
Areas covered: Cardston, Woolford Park, Jefferson, Whiskey Gap, Kimball, Glenwood, Hillspring, Police Outpost Provincial Park.
Team hours: By vehicle, 51; by foot, 20.
Team distance: By vehicle, 415 km; by foot, 17 km.
Weather: May 28, 2-14C, wind SW 5-30, no precipitation; May 29, traces of rain.

Claresholm: May 28-29. Compiler: Grace Norgard, Box 10, Claresholm, Alberta T0L 0T0. Participants: Jason & Ruth Atwell, Dr. Dorcas Kennedy, Grace Norgard, Richard Quinlan, Audry Takahashi.
Areas covered: 40 km radius of Claresholm.
Team hours: By vehicle, 30, by foot, 8.
Weather: May 28-29, 12-22C, wind SW 0-80, no precipitation.

Medicine Hat: May 29. Compiler: Dennis Baresco, 266 - 7th Street S.E., Medicine Hat, Alberta T1A 1J6. Participants: Dennis Baresco, Ingrid Belinsky, Otto Bernhardt, Kelly Bogle, Barb Chishom, Ron Chisholm, Daw Dickinson, Delphine Fortin, Bob Frew, Bill Haynes, Phil Horch, Hope Johnson, Lex Karne, Mark MacDonald, Phyllis MacDonald, Jim Marshall, Lorine Marshall, Val Martins, Peter Mehrer, Darcy McNeil, Dennis Milner, Garry Newton, Mark Oxamitny, Barry Plante, Rita Plante, Dorothy Robertson, Dan Schielbelbein, Mark Scheilbelbein, Les Scholly, Ivan Shukster, Gretton Swan, Veronica Swan, Dan Taylor, Joanne Taylor, Ben Velner, Michael Velner, Arnold Vorrieter,
Areas covered: Medicine Hat and area.
Team hours: By vehicle, 23; by foot, 64.
Team distance: By vehicle, 348 km; by foot, 98 km.
Weather: 6-20C, cool wind 30-60 km/hr., no precipitation.

Cypress Hills: May 28. Compiler: Gaylene Borgstede. Participants: Keith Bocking, Gaylene Borgstede, Jim Cholka, Jon Dewalt, Dawn Dickinson, Phil Horch, Debbie Newkirk, Gary Newton, Mike O'Shea, Tom Trott, Ben Velner.
Areas covered: Spruce Coulee, Reesor Lake, Highway 41, Willow Creek Road., north shore of Elkwater Lake, Graburn Road, Police Point Road, Elkwater Townsite.
Team hours: 10 1/2 hours.
Team distance: By vehicle, 70 km; by foot, 12 km.
Weather: Sunny, warm and dry.

Bindloss: June 5. Compiler: Michael O'Shea, Box 38, Bindloss, Alberta T0J 0H0. Participants: Kevin Fitzsimmons, Lorne Gould, Ian Hamilton, Dorothy Hill, Danielle O'Grady, Michael O'Shea.
Areas covered: Bindloss and area within 12 km radius.
Team hours: Seven.
Team distance: By vehicle, 50 km; by foot, 5 km.
Weather: Sunny and warm, ground very wet from previous 2-3 days of drizzle.

Calgary: Compiler: Rodger Dunn. Participants: Eric Tull, Brooke Clibbon, Jean and Rodger Dunn, Benita Haslett, Jim Washbrook, Kay and Mike Powers, Dick and Lenora Flynn, Andrew Slater, Ena Spalding, John Bargman, Steve Kassai, Joanne Jamieson, Pat Mitchell, Esther Kanegawa, Linda Joehnck, Verne Millar, Horst Grothman, Clay Hunt, Bill Walker, Joan and Malcolm McDonald, Ruth MacRae, Howard Troughton, Ingrid Ektvedt, Lina Evasiuk, Jan Simonson, Jamey Podlubny, George Dutton, Mary Nelson, Mary Huston, Anne Savannah, David Lumley, Bob Metcalf, Shellagh McDonagh, Nancy Boa, Brian Lewis, Lois Lewis, Ruth Ullman, Val Walters, Ian Halladay, Don Magnusson.
Areas covered: A circle 160 km in diameter centred at the Louise (10th Street) Bridge and including McKinnon Flats, Beaverdam Flats, Bow Valley Provincial Park, South Glenmore, Weaselhead, Lowery Gardens, Confederation Park, Queen's Park Cemetery, North Weaselhead, Ogdon backyard, Riverbend backyard, Bowmont Flats, Clay Hunt Ranch, Votier's Flats, Fish Creek Provincial Park, Big Hill Springs Provincial Park, Lochend area, Highways 22X and 24, Dalemead Slough, Wyndham/Careseland Provincial Park, Edworthy Park, Paskapoo Slopes, Inglewood Bird Sanctuary, Brown-Lowery Recreation Area.

Bow River/Kananaskis: May 28-29. Compiler: Janet E. Rodgers, Box 153, Exshaw, Alberta T0L 2C0. Participants: (Bow Kan Birders' Society) Kevin Barker, Beverly Bendell, Sue Blinn, Janet Brygger, Pat Brygger, Bob & Ruth Camenzind, Laura Carr, Dene & Jean Cooper, Linda Davis, Pat Donald, Mary Dumka, Bert & Marilyn Dyck, Margo & Lisa Holmes, Cindy Hutchinson, Steve Jarrand, Wayne Kenefick, L. Laslo, Bill & Angie Loughran, Donna MacKay, Lorraine Maloff, Dick & Miki Mann, Stella McIntyre, Bente & Roy Preshaw, Mike Preston, Rose Reid, Ailene & Bob Reynolds, Janet Rodgers, Paula Rodrigues, Nancy Rudolph, Diane, Wayne, Chelcy & Mandy Scott, Hanne Seidel, Peter Sherrington, Lee & Barry Sproule, Paul & Emily Smith, Maurice, Jan, Sylvie & Elise Tissandier, Donna & Peter Wesley, Eva Zidek.
Areas covered: Bow River and all adjacent lands from Old Camp (just east of Canmore) all the way to the rapids

NE of Horseshoe Falls and including Dead Man's Flats, Gap Lake, Exshaw, Jura and Exshaw creeks, Lac des Arcs, Seebe and Seebe Dam, Bow Valley Provincial Park, Hector Lake and areas of the Stoney and Morley Indian reserves; the Kananaskis River and all adjacent lands from Seebe Dam down to Ribbon Creek, including the Rafter Six Ranch, Barrier Lake and the Barrier research station village, and the Lorette natural area.

Yamnuska: May 28-29. Compiler: Mike McIvor, Box 114, Banff, Alberta T0L 0C0. Participants: Bruce Bembridge, Ruth Buskevicius, Bunny Farly and Nephews Adam & Chris, Kevin Gibney, Bob Smith, Mary Smith, Jan Tissandier, Sylvie Tissandier (Bow Valley Naturalists).
Areas covered: Yamnuska wilderness area, Canmore/ Wind Ridge area.

Banff: May 28-29. Compiler: Mike McIvor. Participants: Nadine Fletcher, Carolyn Fysh, Joel Hagan, John Hagan, Tony Hess, Deb Hornsbey, Diane McIvor, Mike McIvor, Jason Rogers (Bow Valley Naturalists).
Areas covered: Banff National Park.

Red Deer: May 29. Compiler: Myrna Pearman, c/o Red Deer River Naturalists, Box 785, Red Deer, Alberta T4N 5H2. Participants: Cecilia Aschenberger, Beth & Lloyd Cumming, Minnie Cunningham, Dorothy Dickson, Eileen Ford, Herb & Helen Harris, Dorothy Hazlett, Peggy & Jerry Kadey, Erin, Todd & Carol Kelly, Ken Linda, Laura & Michelle Larsen, Germaine Maga, Myrna Pearman, Albert & Beth Peck, Cindy Post, Andy & Doug Taylor, Joan Whitecalf, Kerry & Marjorie Wood, Walter & Lois Zwick.
Team hours: By vehicle, 20; by canoe, 10.5, walking/ feeder watching, 2.5.
Team distance: By vehicle, 270 km; by canoe, 34 km; by foot, 50 km.

Buffalo Lake: May 27-28. Compilers: Lloyd Lohr, P.O. Box 40, Erskine, AB T0C 1G0 & Carol Simpson, #20 Emmerson Acres, Stettler, AB T0C 2L0. Participants: Hugh & Nora Charles, Bertha Clarke, Christene Comstock, Trudie Grafe, Gary & Laverne Grant, Elmer Gross, Gladys & Wilf Hewlett, Martha & Ron Kruger, Lloyd Lohr, Mike, Nathan & Philip Moad, Hazel Peterson, Irma Simons, Carol Simpson, David & Les Simpson, Barbara Smith, Barb & Garnet Stark, Phyllis Wood.
Areas covered: Stettler and surrounding areas (north to Buffalo Lake and south to Mckenzie Crossing).
Team hours and distances: 25 observers in 13 teams drove 384 km in 27.25 hours and walked 29 km in 17 hours; 15 of the 25 observers watched their yards and feeders for 14.5 hours.
Weather: May 27, 3-18C, skies clear to cloudy and overcast, wind up to 30-39 km/hr., no precipitation; May 28, 7-23C, skies clear to cloudy and overcast, wind up to 30-39 km/hr., no precipitation.

Lamont/Elk Island: May 28-29. Compiler: Bob Carroll, Box 204, Ft. Sask. T8L 4B6. Participants: Bob Carroll & Des Bovell.
Areas covered: Elk Island National Park and Lamont county.
Team hours: 15.
Team distance: 320 km by vehicle.
Weather: Clear, no wind.

Athabasca: May 28-29. Compiler: Jim Lange, 13216 - 128 Avenue, Edmonton, Alberta T5L 3H2. Participants: Lesley & Rusty Brown, John Coulson, Jim Lange Bob Parson, Blair, Geoff & Ryan Peruniak, Teresa Scholer.
Areas covered: May 28, ForFar Recreation Park and Canor Lake (35 km SW of Athabasca); May 29, Black Bear Provincial Grazing Reserve.
Team hours: May 28, 06:00 -21:30 hours; May 29 08:30 - 15:30 hours.
Weather: May 28, 4-20C, mostly sunny with some cloud, light SW winds Beaufort Scale 3; May 29, light rain shower in early morning with partial clearing later on, thundershowers developing with light rain in afternoon, unsettled weather conditions with light winds BS 3 from west.

Wembley: May 27-28. Participants: Gavin & Ellen Craig, R.R. 1, Wembley, Alberta T0H 3S0.
Areas covered: Uswells Lake, Cutbank Lake, Lake Saskatoon, farmstead at NW 5-72-7 W6, and trapline in Township 65 W5.
Team hours and distances: May 27, 7:30 p.m. - 8:45 p.m., 25 km by vehicle; May 28, 20 a.m. to 12 noon and 3:30 p.m., 1 2/2 km walked, 190 km by vehicle.

Bear Lake/Saskatoon Mountain: Participants: Andy Raniseth (Bear Lake) and Margot Hervieux (Saskatoon Mountain).
Areas covered: East side of Bear Lake (Ducks Unlimited property), Saskatoon Mountain.
Weather: Partly cloudy, breezy, about 16C (Bear Lake; cloudy, windy and cool (Saskatoon Mountain).

Fort McMurray: May 28-29. Compiler: Fred Korbut, 5409, 15 Saunderson Avenue, Fort McMurray, Alberta T9H 3Z5.

Fire Towers: May 28-29. Compiler: Janet E. Rodgers (see Bow/Kananaskis count). Participants: (members of the Bow Kan Birders' Society on fire tower duty) and their tower locations: Goose Mountain, latitude 54°-45'-02", longitude 116°-01'-59", Karen Yamazaki; Hamell Lookout, Latitude 53°-58'-20" N., longitude 115°-09'-43" W., elevation 6,900', Linda Miller; Deer Mountain Tower, latitude 54°-54'-46" N., longitude 115°-09'-43" W., elevation 3,861', Suzanne Boyle.

1994 May Species Count for Birds and Mammals - Birds

Species	Leth	Wat	Card	Clar	Med	Bind	Bow	Banf	Yam	Calg	Red	Buff	Bear	Atha	Wem	Lam	FTMc	Tow	Cyp
Common Loon		2	2				26	3	4	8	43	2		7		6	2	1	
Pied-billed Grebe	1			1			5		1	3	4	1							
Horned Grebe	2	1	2	3		1				16	39	36		1		3			
Red-necked Grebe	5		20				5	2		33	140	22		4	5	40	17		9
Eared Grebe	171		14	37						200	88	35		200	10				
Western Grebe	19		1							57	3					6			
American White Pelican	371		40	7	49	6				29					20	200			
Double-crested Cormorant	109		69		15	1				147		10				256			
American Bittern	1		1							1		1				2			
Great Blue Heron	14		12	15	57		5			19	52	6		2		7			2
Bl.k.-crowned Night-Heron	1									5		19				6			
Mute Swan																	w 1		
Trumpeter Swan		4												30	4				
Gr. White-fronted Goose																			
Snow Goose																			
Canada Goose	1791	20	278	1028	568	34	367	8	7	1177	251	704		6	127	725	50		31
Wood Duck					4					7									
Green-winged Teal	14		4	12	4	1	1	3	3	14	18	10		6	9	15	6		2
American Black Duck																			
Mallard	283	31	297	279	199	14	134	40	33	579	178	193	36	9	74	350	2		27
Northern Pintail	98		76	80	72	8				82	5	15	1		1	15			4
Garganey																			
Blue-winged Teal	115	3	113	107	66	9	5	7		159	54	150	1	7	8	15	13		6
Cinnamon Teal	41		43	9	4	2		2		25	1	7				2			
Northern Shoveler	116		117	87	50	3		1		90	33	62	2		5	14	4		1
Gadwall	92		24	30	20					240	18	96		5	14	25	2		2
Eurasian Wigeon																			
American Wigeon	49	4	6	8	29	3				75	1	25	1	4	24	10	8		12
Canvasback	85		57	10	16	3				46	15	44			6	18			
Redhead	55		10	18	10					99	52	83		2	10	12			
Ring-necked Duck	2	6	19		1		15	6	5	6	18			10	6	16	6		18
Greater Scaup																			
Lesser Scaup	227		104	60	27	14	20	4	5	183	229	204		14	158	30	6		32
Harlequin Duck							8	3											
Surf Scoter															10				
White-winged Scoter	8									11	40	1		20	116	2	4		15
Common Goldeneye	5				13		35			66	14	4		3	47	10			
Barrow's Goldeneye	2	7	3				56	8	5	2	48				24	109			
Bufflehead	24	7		3	1		6	2	14	78	51	46	4	14	133	50	20		14
Hooded Merganser	1								1	13									
Common Merganser	16	9	2		12		40	1	1	30	14	7				1			2
Red-breasted Merganser										1									
Ruddy Duck	48		19	15	4	1	9			67	77	35		5		16			1
Turkey Vulture					1														2
Osprey	1	1					14	1	2	4	1			* 2					1
Bald Eagle		1	1				6	3			5			2	2	1			
Northern Harrier	33	1	31	28	11	6				14	2	2		5		7		1	
Sharp-shinned Hawk		1	1						1	1	2	1		3					
Cooper's Hawk	1				1		2			1	2			2					
Northern Groshawk										1			1						
Broad-winged Hawk																1		1	1
Swainson's Hawk	40		43	60	27	6				49	9	4				2			1
Red-tailed Hawk	25	4	12	27	6		8	1	1	67	31	38	1	11		13		3	8
Ferruginous Hawk	5		11	1	1	3													
Rough-legged Hawk	1									1	2	2					1		
Golden Eagle	3		6	1		2	2												
American Kestrel	28	3	7		32	2	2		1	13	6	1		3	2	1	9	2	1

1994 May Species Count for Birds and Mammals - Birds

Species	Leth	Wat	Card	Clar	Med	Bind	Bow	Banf	Yam	Calg	Red	Buff	Bear	Atha	Wem	Lam	FTMc	Tow	Cy
Merlin	4			2	5	1	3			7						2			
Peregrine Falcon										1									
Prairie Falcon	2				2	1	1			1									
Gray Partridge	19		2	15	9	3				24									
Chukar	2																		
Ring-necked Pheasant	24		4	3	27	4				19			2						
Spruce Grouse							2										1		
Willow Ptarmigan																			
Ruffed Grouse	1			5			12	2	5	4	6	1	3	3	6	5			
Sharp-tailed Grouse				1	2														
Wild Turkey						1													
Yellow Rail							4			1									
Virginia Rail	1																		
Sora	6	3	3		5	2	5	4	1	27	9	5		3	3	6	2		
American Coot	49		187	45	18	1	16		1	93	148	91	2	20	3	20	1		
Sandhill Crane			3								2			2	3		17		
Black-bellied Plover	1069		2	w 3						170		8							
Lesser Golden Plover	53																		
Semipalmated Plover	2																		
Piping Plover	4																		
Killdeer	90	10	55	51	61	17	14	4	1	54	33	18	1	6	2	5	6		
American Avocet	79		9	46	2	32				167		4				1			
Great Yellowlegs									1								5		
Lesser Yellowlegs				8							10					4	6		
Solitary Sandpiper					4		3	2	1	1	5			3			8	1	
Willet	31		8	16	21	5				39		3				12			
Spotted Sandpiper	55	6	16	7	12	2	120	6	5	65	12	15		4			4		
Upland Sandpiper	2					1													
Long-billed Curlew	24		14	28	8	13				1									
Marbled Godwit	85		4	13	10	9				30	1	3				8			
Ruddy Turnstone																			
Red Knot	2																		
Sanderling	39																		
Semipalmated Sandpiper										1									
Least Sandpiper	12									1									
White-rumped Sandpiper																			
Baird's Sandpiper	1									9									
Pectoral Sandpiper																			
Stilt Sandpiper										4									
Buff-breasted Sandpiper																			
Short-billed Dowitcher	1																6		
Long-billed Dowitcher	1									7									
Common Snipe	5	2	21	5	3		6	5	3	33	17	16		3	2	18		11	
Wilson's Phalarope	50		23	36	1	14				59						3			
Red-necked Phalarope										20									
Red Phalarope																			
Franklin's Gull	765			66	7					409	21	14	3	126	750				
Bonaparte's Gull							1			4	6			54	14		5		
Mew Gull															50				
Ring-billed Gull	352	3	259	101	723	1				3183	45	102	2		54	5	1		
California Gull	249	2	5	4	27		6			2430	27	18			6	4			
Herring Gull																	1		
Caspian Tern	45																		
Common Tern	177		3		3					3	42	8			4		1		
Forster's Tern	16									9									
Black Tern		2	87	3						219	314	150		27	55	400			
Rock Dove	117		85	43	275	2	26			63	19	39				10			

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Species	Leth	Wat	Card	Clar	Med	Bind	Bow	Banf	Yam	Calg	Red	Buff	Bear	Atha	Wem	Lam	FTMc	Tow	Cyp
Mourning Dove	104		19	12	122	21	1			28		1				4			7
Great Horned Owl	15	1	11	14	12	2			2	3	1	1			2				
Nothern Pygmy Owl											1								
Burrowing Owl	2			6		1													
Barred Owl							1												
Great Gray Owl										11	6								
Long-billed Owl			1	w 1											2				
Short-eared Owl	4		8	11											1				
Boreal Owl																		5	
Northern Saw-whet Owl													10						
Common Nighthawk	w 1	1				2						1						1	
Vaux's Swift																			
Ruby-thr. Hummingbird				2			13			7	8	10		2		1			
Calliope Hummingbird		1		1			20		2	2									
Rufous Hummingbird		1		9			64	2	3	8									
Belted Kingfisher	1	1			1		22	2	3	7	1						2		2
Lewis's Woodpecker																			
Yellow-bellied Sapsucker				8			3			12	11	4		3	7	1	4		
Red-naped Sapsucker		3				* 2		1	2	2									2
Downy Woodpecker	6	2		5	7		4			9	11	4		1	4	1			2
Hairy Woodpecker	2	1	1	1	2	2	2	1	1	8	12	10		1	4	3	4		4
Three-toed Woodpecker								1					1				2		
Blk-backed Woodpecker																			
Northern Flicker	34	6	12	10	65	3	22	4	6	25	11	5	2	2	4		10	3	16
Pileated Woodpecker		1		1	1		9	1			2	2		2			2		
Olive-sided Flycatcher	1	4		4	2	1		1	5	2	1			4		2	1		
Western Wood-Pewee	29	1	10	17	22	1	3	3	2	71	8	1	3	8	2	2			2
Alder Flycatcher				w 2			3			3	6			2		2		4	
Willow Flycatcher		1		1			4						1				1		
Least Flycatcher	30	5	12	20	56	9	25	4	9	270	55	8	23	15	5	10	10	4	24
Hammond's Flycatcher							1												
Dusky Flycatcher		2					13		8										28
Pacific-slope Flycatcher				1															
Eastern Phoebe	2									5	2	1		2		5			1
Say's Phoebe	2		7							1									
Black Swift							1												
Western Kingbird	60			32	95	4				16		1							
Eastern Kingbird	99	3	26	48	189	8	2		6	105	7	6	1	6					
Horned Lark	209		48	159	138	71				30									
Purple Martin							4				32	19				12			
Tree Swallow	94	13	42	60	81		90	11	10	410	212	213	16	6	20	39	16	4	30
Violet-green Swallow	5				9		38	2	5										
N. Rough-winged Swallow	109			16	11	3	49	20	4	80	4					2			1
Bank Swallow	232	1	37	47	128		63	12		881		7				5			101
Cliff Swallow	215	130	308	318	441		178	60		664	2	161		50	2	6	1000		
Barn Swallow	62	8	29	61	102	26	88	42	1	109	222	52	3	21	21	20	12	6	2
Gray Jay		5		2			17	6	5	7	7			12	3		18	13	
Blue Jay	4			6						10	12	13		1	6	1	4		
Clark's Nutcracker								1											
Black-billed Magpie	165	9	43	57	349	13	55	9	3	255	51	69	5	10	17	10			6
American Crow	60	18	61	59	87	13	57	12	8	134	72	132	6	4	24	65	10		10
Common Raven	5	7	53	17			84	9	18	20	18			6	9	4	12	4	
Black-capped Chickadee	17	5	1	6	14		47	2	1	111	77	28		1	7	4	2		19
Mountain Chickadee		1		4			20		8										
Boreal Chickaded							5		2	9	4			1				7	
Red-breasted Nuthatch	4	11	6	6	7		18	9	5	35	6	3		2			3	2	3
White-breasted Nuthatch										3	6			1					2

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Species	Leth	Wat	Card	Clar	Med	Bind	Bow	Banf	Yam	Calg	Red	Buff	Bear	Atha	Wem	Lam	FTMc	Tow	Cy
Rock Wren	6		2							1									
House Wren	122	3	55	62	152	18	2		2	274	27	33		4		6			1
Winter Wren		7																3	
Sedge Wren																1			
Marsh Wren	8	1				3		1		17	17	26				2	* 2		
American Dipper		5					2												
Golden-crowned Kinglet	1	8		7			12	11		12					1		1	4	
Ruby-crowned Kinglet	3	30	w 1	8			63	13	22	50	31	1	1	4	3	2	1	14	2
Western Bluebird																			
Mountain Bluebird	59	6	8	61	1		32	3	7	52	81	82	2			2		2	2
Townsend's Solitaire		1		5			3	1	1		1								
Veery		1			1		1			13		1				1			
Gray-cheeked Thrush															5		1		
Swainson's Thrush	11	3	10	3	6		1	3	4	5			1	2		4		4	
Hermit Thrush							8		1	11				3	2	2			
American Robin	228	48	169	99	525	11	206	26	41	293	122	91	11	25	25	45	36	3	7
Varied Thrush		6					10											3	
Gray Catbird	42	1	7	6	41	5	1			29	2	11				3			
Northern Mockingbird						w	1												
Brown Thrasher	19			5	32	12				2									
American Pipit				2						1									
Sprague's Pipit	16				5	5													
Cedar Waxwing	66	6	16	20	225	12	90	2	25	107	45	9		30		10			
Loggerhead Shrike	2				7	11									1				
European Starling	677	15	151	239	981	45	86	5	4	842	54	141	4	5	15	30	6		
Solitary Vireo							1	1		3									
Warbling Vireo	23	18		6	63	4	29	13	7	76	12	1	5	2		3		14	
Philadelphia Vireo											8			1			8		
Red-eyed Vireo	1			w	6		1			22	9	3	2	9		2	4		
Tennesse Warbler				w	2		6	1	1	22				5			10		
Orange-crowned Warbler		2		w 4			13	6	10	10			1				2	1	
Yellow Warbler	122	40	46	31	465	19	53	5	16	440	17	42	37	15	6	20	9		1
Magnolia Warbler							4	1									1	1	
Yellow-rumped Warbler	w 1	4		7	2		73	49	14	14			5	8	1	2	2	58	
Townsends's Warbler		7					15	8			21								
Black-thr. Green Warbler										1							8		
Palm Warbler			w 1																
Bay-breasted Warbler																	2		
Blackpoll Warbler			w 1	w 1	1												2	1	
Black-and-white Warbler				w 1			2										8		
American Redstart		1		w 1	1		2	6		1			1		2			3	3
Ovenbird				w 1			5		1	5			1	4	3		6		
Northern Water Thrush		9					15	4	6										
Connecticut Warbler										7				2		1			
Mourning Warbler																2			
MacGillivray's Warbler		17		1			4												
Common Yellowthroat	12	7	1	w 4	16	2	16	14	3	31	10	2				5			2
Wilson's Warbler	2	6	w 1	w 2			23	7	1	3					2				
Canada Warbler																	10		
Yellow-breasted Chat					2	2													
Western Tanager		3		w 1			1	2		1	3	1	2	3			1		
Rose-breasted Gosbeak				w 4	1				1	10	6	1	1	5	2	5			
Black-headed Grosbeak		5																	
Lazuli Bunting	1				1		2												
Rufous-sided Towhee	19				15	10	1			1		1							
American Tree Sparrow					1					1							2		
Chipping Sparrow	19	18	7	34	19		88	13	20	63	34	3	1	7	4	6	22	38	3

1994 May Species Count for Birds and Mammals - Birds

Species	Leth	Wat	Card	Clar	Med	Bind	Bow	Banf	Yam	Calg	Red	Buff	Bear	Atha	Wem	Lam	FTMc	Tow	Cyp
Clay-colored Sparrow	67	4	7	24	85	86	4		2	235	37	69	14	4	1	12	4		6
Brewer's Sparrow	10				1														
Vesper Sparrow	89	3	8	129	38	17	10	1	2	41	2	16		1	2	6			13
Lark Sparrow	23				72	18						1							
Lark Bunting	35			w 1	59	84													1
Savannah Sparrow	85	5	46	136	46	8	14	1	1	197	12	14	8	5	17	18	2	1	34
Baird's Sparrow	17				6	3				3									23
Grasshopper Sparrw	15				3	* 3													11
LeConte's Sparrow										36	3	29				2	1		
Sharp-tailed Sparrow										4	2					1			
Fox Sparrow		3					3			1			2		2				
Song Sparrow	13	2	3	1	5		8	3	6	54	25	32	11	5	3	7	6		13
Lincloln's Sparrow	1			1	1		8	7	4	9				3		2		27	
Swamp Sparrow							1							5		5	1		
White-throated Sparrow	1			w 1			8		9	63	29	2	12	11	4	6	23	27	1
White-crowned Sparrow	5	25	4	9			40	4	6	6	1				4				22
Harris's Sparrow															1				
Dark-eyed Junco	1	7	1	13			94	13	30	28	21	2		1	1	3	1	33	25
McCown's Longspur	1					37													
Lapland Longspur																			1
Chestnut-collared Longspur	96		6	6	16	79				5									
Bobolink											1								
Red-winged Blackbird	264	19	199	243	453	20	123	19	30	727	321	361	13	15	45	250	34		44
Western Meadowlark	164	8	36	63	313	124				79	1	6				7	1		31
Field Sparrow			15																
Yellow-throated Blackbird	347	39	130	23	192	3	1			375	123	149			9	15			12
Rusty Blackbird					2														
Brewer's Blackbird	157	6	52	111	291	69	36		5	150	67	63			19	20	4		24
Common Grackle	81		14	2	239					24		1		5	1	3	6		
Brown-headed Cowbird	124	11	26	79	121	15	184	8	23	174	69	31	8	7	4	20	4		22
Northern Oriole	47	1	13	21	86	4				167	18	25	1	3		10			3
Rosy Finch																			
Pine Grosbeak		1																1	
Purple Finch										1	12			4		3			
Cassin's Finch		2																	
Red Crossbill	w 1				6														
Pine Siskin	4	92		27			110	20	14	47	5			1				3	12
American Goldfinch	92	7	85	45	92	4	5			125	106	43		9		10			52
Evening Grosbeak		4		w 2			1	1		2	3				2				
House Sparrow	287		140	265	874	29	39		8	199	48	409				16			
Observers	37	10	7	6	37	6	56	9	10	44	30	25	2	9	2	2	1	3	11
Total Species	147	99	100	110	118	84	123	79	80	168			46	93	82	119	80	37	96
Total Birds	12394	892	4227	5239	10038	1167	3577	605	548	19402	4537	4815	275	999	2094	3258	1556	314	1138

Legend:

w - Count week only

* - Active nests

Leth	Lethbridge	Red	Red Deer
Wat	Waterton	Buff	Buffalo Lake
Card	Cardston	Bear	Bear Lake/Sask. Mt.
Clar	Claresholm	Atha	Athabasca
Med	Medicine Hat	Wem	Wembley
Bind	Bindloss	Lam	Lamont/Elk Island
Bow	Bow River/Kananaskis	FtMc	Fort McMurray
Banf	Banff	Tow	Fire Towers
Yam	Yamnuska	Cyp	Cypress Hills
Calg	Calgary		

1994 May Species Count for Birds and Mammals: The Mammals

Mammal Summary

For the second consecutive year, May count observers recorded a total of 31 mammal species, compared to 28 in 1991 and 25 in 1992. Six of the species counted in 1993 were not recorded in 1994, but six different species were added, for a total of 40 over the past four years.

Mammal observations were reported by 9 of the 19 groups participating in the bird count in 1994.

The highlight was undoubtedly the Cougar seen at Waterton, a rare and exciting event at any time!

From her post at the Hammel Lookout fire tower near Grand Cache, Linda Miller reported wolf, mountain goat (adults and young), moose (a cow with twin calves) and golden-mantled ground squirrel.

Also of interest were the red-backed vole reported by the Red Deer Naturalists, and thirteen-lined ground squirrel with one each seen by the Red Deer and Buffalo Lake groups.

LEGEND:

X - Present

T - Tracks

*** - with young**

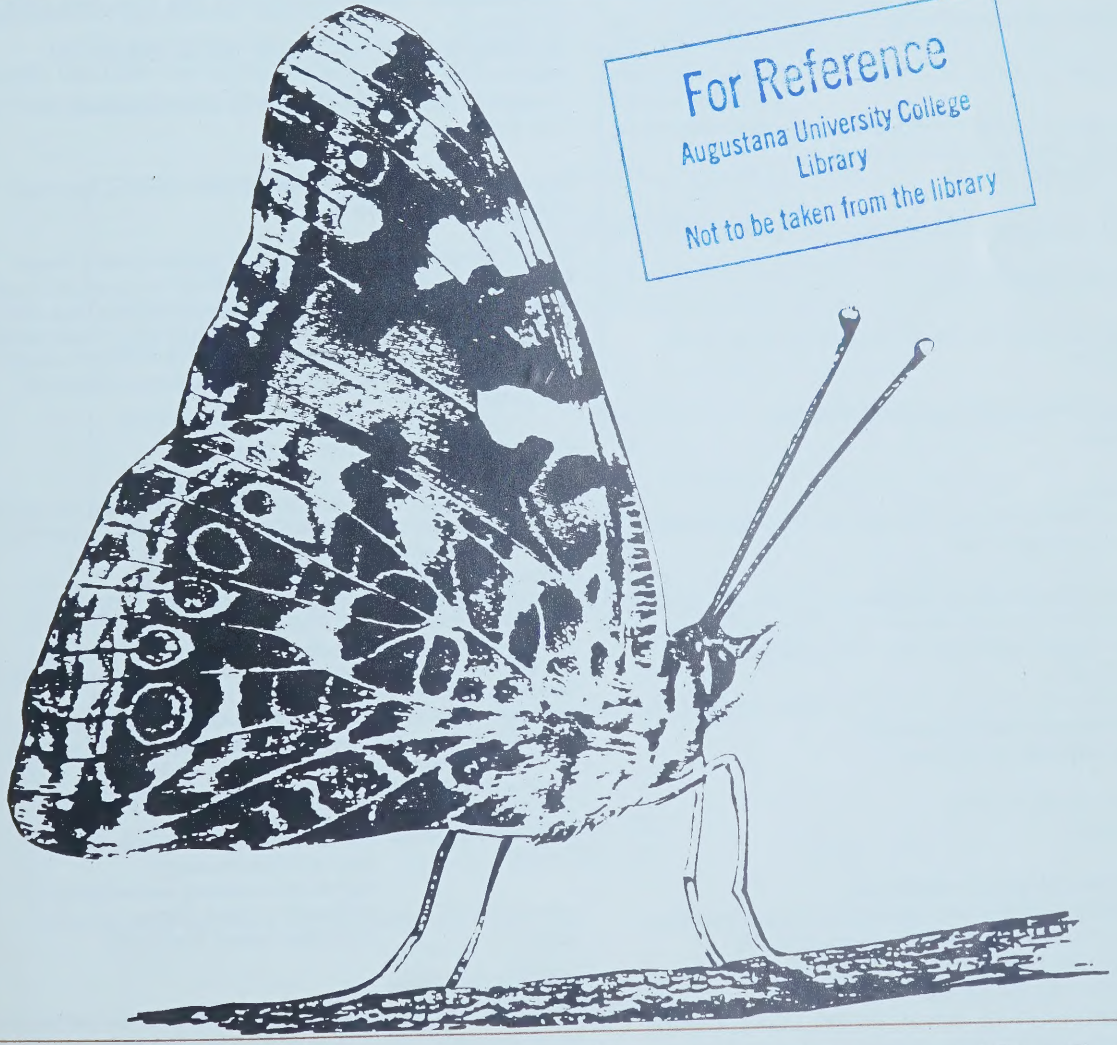
LETH	**Lethbridge**	**REDD**	**Red Deer**
WATE	**Waterton**	**BUFF**	**Buffalo Lake**
CARD	**Cardston**	**WEM**	**Wembley**
CLAR	**Claresholm**	**TOW**	**Fire Towers**
BOWK	**Bow/Kan**		

MAMMAL SPECIES	LETH	WATE	CARD	CLAR	BOWK	REDD	BUFF	WEM	TOW
Shrew (ssp.)	3								
Snowshoe hare					X	6		2	X
White-tailed jack rabbit	2		2	1					
Least chipmunk		1			X		3		
Yellow-bellied marmot	21		6						
Richardson's ground squirrel	258		40	42		18	100		
Columbian ground squirrel		30		6					
13-lined ground squirrel						1	1		
Golden-mantled ground squirrel		1							X
Woodchuck						2			
Red squirrel		6			X	11	2		X
Northern pocket gopher	T				X				
Beaver	4			1	X	2		1	
Muskrat	4	1	4	6	X	8	27		
Porcupine					X	1			
Meadow vole	2								
Red-backed vole						1			
Red fox	2		1			1			X
Coyote	3	2	3	2	X	2	1		
Wolf									X
Cougar		1							
Badger	2		1						
Striped skunk	1			1					
Mule deer	9	52	20	24	X	3	8	9	X
White-tailed deer	14	2	6	11	X	11	7	5	X
Moose				1	X	2			X*
Elk		2			X			1	
Pronghorn	5		11						
Mountain goat		2							X*
Bighorn sheep		12			X				
Bison		20							

Volume 25, Number 4 Winter 1995

ALBERTA NATURALIST

Alberta's Natural History Review



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Recent Winter Biology of Pronghorn Near Hanna - "Hepburn's" Gray-crowned Rosy-Finch
The Canadian Lynx - Type Localities of the Butterflies Cary's Arctic and Christina Sulphur
It's a Small World - Rare Bird Sightings in the Boreal Forest - Alberta Issues
An Alberta Bird Record Committee Sees the Day - Book Reviews

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CONTENTS

President's Page 64

Editor's Page 65

What Was That 65

Recent Winter Biology of Pronghorn Near Hanna, Alberta, R.S. Gainer 66

"Hepburn's" Gray-crowned Rosy-Finch in Alberta, Doug Collister 70

The Canadian Lynx, Peter A. Sulzle 72

Alberta Issues 73

Type Localities of the Butterflies Cary's Arctic (*Oeneis caryi* Dyar) and Christina Sulphur (*Colias christina* Edw.), Norbert G. Kondla 75

It's a Small World - Rescuing the Lion, Don Hilton 77

Important Bird Areas Program 78

Rare Bird Sightings in the Boreal Forest of Northern Alberta, D. Lisa Takats 79

An Alberta Bird Record Committee Sees the Day, Jocelyn Hudon 81

Book Reviews

Bird Brains: The Intelligence of Crows, Ravens, Magpies and Jays, review by Ivan Shukster 82

Alberta Butterflies, review by John Acorn 83

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Deadlines for FAN project reports are:
Alberta Christmas Bird Counts: January 30, Howard Troughton, #904, 424 - 10 Street NW, Calgary, Alberta T2N 1V9.
May Species Count for Birds and Mammals: July 15, Marvin Hubscher, P.O. Box 2533, Medley, Alberta T0A 2M0.
May Species Count-Plants: July 15, J. Derek Johnson, Northern Forestry Centre, 5320 - 122 St., Edmonton, AB T6H 3S5.

Compiler cooperation is greatly appreciated.

Honorary Member: Professor W. Ray Salt

Patron: Hon. Dr. J.W. Grant MacEwan

The Federation of Alberta Naturalists is composed of natural history clubs from across the province. The aims of the Federation are:

(a) To encourage among all Albertans, by all means possible, an increase in their knowledge of natural history and understanding of ecological processes;
(b) To promote an increase in the exchange of information and views between natural history clubs and societies in Alberta;
(c) To foster and assist in the formation of additional natural history clubs and societies in Alberta;
(d) To promote the establishment of natural areas and nature reserves, to conserve and protect species, communities or orther features of interest;
(e) To organize, or coordinate symposia, conferences, field meetings, nature camps, research and other activities whether of a similar or dissimilar nature;
(f) To provide the naturalists of Alberta with a forum in which questions relating to the conservation of the natural environment may be discussed, so that united positions can be developed on them, and to provide the means of translating these positions into appropriate actions.

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Bow Valley Naturalists, Box 1693, Banff, AB T0L 0C0.
Buffalo Lake Naturalists, Box 1802, Stettler, AB T0C 2L0.
Calgary Field Naturalists' Society, Box 981, Calgary, AB T2P 2K4.
Edmonton Bird Club, Box 1111, Edmonton, AB T5J 2M1.
Edmonton Natural History Club, Box 1582, Edm., AB T5J 2N9.
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Grasslands Naturalists, Box 2491, Medicine Hat, AB T1A 8G8.
Lethbridge Naturalists' Society, Box 1691, Lethbridge, AB T1J 4K4.
Peace Parkland Naturalists, Box 1451, Grande Prairie, AB T8V 4Z2.
Red Deer River Naturalists, Box 785, Red Deer, AB T4N 5H2.
Vermilion River Naturalists, Box 1769, Vermilion, AB T0B 4M0.

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Alberta Society for Injured Birds of Prey
Beaverhill Bird Observatory
Big Lake Environmental Support Society
Earthcare Peace Study Centre
The Wagner Natural Area Society

Editorial Disclaimer

The opinions expressed by the authors in this publication do not necessarily reflect those of the editor and the Federation of Alberta Naturalists. The editor reserves the right to edit, or to reject or withdraw articles submitted. While due care will be taken of all manuscripts, photos or artwork submitted, FAN cannot be held responsible for any loss or damage to such articles.

President's Page

Harvey Gardner

I have been asked by one FAN corporate member club to withdraw from the Provincial Coordinating Committee on Special Places 2000 because of the government history of bad faith on habitat preservation. Be advised that I still believe "...that the best use of our energy in the near future is in assisting the PCC to obtain changes in the legislation that will preclude industrial development in protected areas..."(see President's Page in the fall issue of the *Alberta Naturalist.*

I did not really expect the Special Places 2000 process to be easy, but now that I have been to a few PCC meetings, it looks even tougher than I expected. Opposition seems to be coming from an unexpected area—an unelected "shadow government" in the form of certain employees of government departments.

I really don't know these people and do not have insight into their motivation, or the extent of their reluctance to support Special Places. Speculation brings me to wonder if they have become fed up with environmental agitators; and/or have ties to industry; and/or fear loss of clout through transfer of "turf" to other departments; and/or some scenario I cannot imagine. Are Premier Ralph Klein and Environment Minister Ty Lund in a position to pressure people to yield pertinent information to the PCC for consideration? Who really is driving this bus? Can the voters (us) push the elected government members (ours) hard enough to force the unelected (them) to bring forth existing information on candidate Special Places?

The high level of cooperation among the many diverse groups on the PCC gives hope that we can pull this thing off, and that there will be a reasonable protected areas network in this province.

Thank you all for your input and support during this term of office and for the honor of being your President these past two years. Welcome, incoming President Jorden Johnston.

FAN Meeting

The Annual General Meeting of the Federation of Alberta Naturalists will be held in Red Deer on January 27/28 at the Pioneer Lodge, corner of 46th Avenue and 44th Street.

January 27th 9:00 a.m. to 4:00 p.m. - Workshops on "Confirming FAN's Direction"

January 28th 9:00 a.m. to 4:00 p.m. - AGM and Board of Directors Meeting

New Provincial Compilers for Christmas Bird Count and May Species Count for Birds and Mammals

FAN is pleased to announce new provincial compilers for the Christmas Bird Counts and the May Species Count for Birds and Mammals.

For the Christmas Bird Counts:
Howard Troughton
#904, 424 - 10 Street NW
Calgary, Alberta T2N 1V9
Phone: 283-3392

For the May Species Count for Birds and Mammals:
Marvin Hubscher
P.O. Box 2533
Medley, Alberta T0A 2M0
Phone: 594-1600 (days)

Please send your compilations to them as soon after the event as possible. Many thanks to Andrew Slater, Don Stiles and Curtis Pollock for their dedicated work on these counts.

Editor's Page

From the Editor:

By the time you receive this it will be a new year. Christmas Bird Counts will be done (all except for the tallying); I hope the weather was not too bitter. Welcome to Howard Troughton in his new job as provincial CBC compiler; also to Marvin Hubscher who will be compiling the Spring Counts for Birds and Mammals. Derek Johnson continues his work with the Spring Flower Count, the data from which, except for 1995, is now in a computerized database.

This has been a bit of a bleak year for Alberta's environment. Witness the excessive and (until recently) uncontrolled logging on private land; emasculation and undermining of the Special Places policy and process; continued development threats in Banff National Park and the Bow/Canmore Corridor; and proposed federal endangered species legislation that is deficient in a number of areas. This list is a reminder of what FAN and its member clubs are about. Not only do we enjoy, but we must continue to work to protect what we enjoy.

Many thanks to those of you who submitted articles to last years's *AN*. Much more original material is coming our way, which keeps this editor happy. I look forward to reading the articles that 1996 will bring. The 25th Anniversary Special Issue will be out in the spring. My thanks go to those individuals who are contributing to this publication and who have endured the minor bullying an editor must do to get her material.

Best wishes for the new year.

R. Edrea Daniel

What Was That!

The first item of business is to thank all those keen souls who participated in the Christmas Bird Counts around the province. We are sure that the new provincial compiler, Howard Troughton, will have those results out in record time!

The American Birding Association's *Winging It* magazine reported that several of the fall hawkwatches around North America reported significant or all-time high counts for some species.

The Personal Birdlist software program distributed by FAN, at no cost, has over a hundred birders now signed up. It is hoped that in 1996 funds will be available to promote this program outside of the FAN circle and include birders that at present may have no club affiliations. It is encouraging to see the number of checklists that are being returned to the FAN office from all corners of the province.

The Canadian Wildlife Service has published *A Landowner's Guide - Prairie Raptors* coauthored by Geoff Holroyd, Ivan Shukster, Diane Keith and Laurie Hunt. It is described as a comprehensive guide for landowners and other prairie dwellers to the identification and conservation of eagles, hawks, owls, falcons and other birds of prey. The section on how landowners can help to conserve raptors is well-organized and succinct. The identification section has color photographs and brief descriptive sections. The booklet also provides plans for nest boxes and nest platforms. This publication is available from CWS, Twin Atria Building, Room 200, 4999-98 Ave. Edmonton, AB T6B 2X3.

Josef Schmutz of the University of Saskatchewan, a director of the Raptor Research Foundation, has forwarded a copy of a letter to Walter Paszkowski, Minister of Alberta Agriculture, Food & Rural Development. This letter makes the Minister aware of a resolution passed by the organization encouraging jurisdictions and individuals to manage burrowing mammals with due consideration given to their importance in the ecosystem. One of the justifications for this initiative is that prairie dogs and ground squirrels are keystone species supporting a variety of wildlife, either as prey or by providing a burrow-home. The letter goes on to say that this resolution goes beyond single species to the conservation of features important for the maintenance of wildlife communities and ecosystems. Specifically, the group asks the Minister to phase out any involvement in poisoning and other control programs aimed at prairie dogs and ground squirrels; to remove these animals from so-called "pest" lists; to prohibit the destruction of burrowing mammals on public lands except in accordance with an approved conservation plan; and to involve local natural history clubs, where control is warranted, to explore alternate biological methods of control.

If you have any unusual sightings of any types of creatures big and small, please send them in to the *Alberta Naturalist*. We hope that the upcoming year gets more people out enjoying the wonders of this province.

Recent Winter Biology of Pronghorn Near Hanna, Alberta

R. S. Gainer

In the last 10-15 years, the impression of most rural residents in the Hanna area is that pronghorn *(Antilocapra americana)* have become more common in the area, especially north of Highway 9. In addition, personal contacts tell me occasional sightings of the animals occur right to the North Saskatchewan River north of Lloydminister to the Battlefords (F. Hoffman; J. Gilchrist; B. Bergman; A. Perry, pers. comm.). Indeed, the media made much of an animal roaming the streets of Edmonton in the summer of 1994.

Pronghorn range now approximates the northern "historic limit" of the species and is considerably further north of the range described 10 years ago in the province's management plan for the species (Glasgow 1990), although the number of pronghorn north of Highway 9 is not that large. My estimate of pronghorn numbers in this area, from counts of overwintering groups, is 600-1100. Canada's population is thought to be approximately 30,000 and North America's 500,000 (Yoakum 1978a).

Many reasons can be given for the pronghorn's range extension. Historically, areas now farmed in the aspen parkland were probably open prairie because of grass fires and ungulate (especially bison) grazing pressure. European colonizers originally caused the conversion of prairie to woodland by exterminating the grazing ungulates and discouraging native burning of the grass. They then converted the woodland to cultivated land (Wishart 1984). Now, the wide open, treeless expanses that existed historically are back, but instead of native grassland the habitat is commercial crops. Northern pronghorn, it seems, are taking advantage of this absence of trees, despite the fact that the environment is not natural, but man-made. The Hanna area pronghorn are also associated with alkali lakes and sloughs.

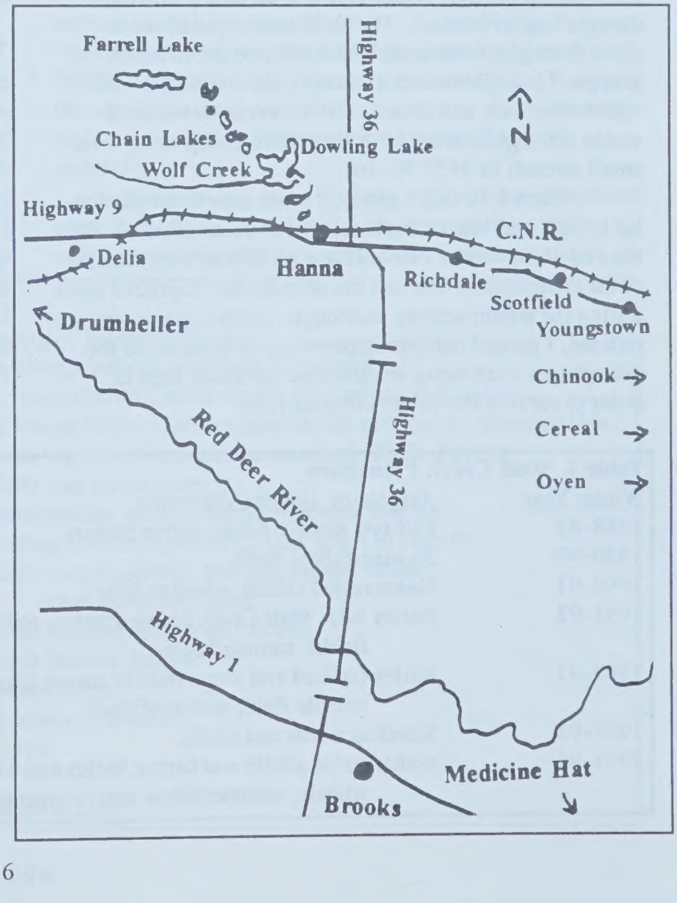
Driving through pronghorn summer ranges, my impression is that food and space are not limiting factors. There seems to be only a small number of animals distributed over a vast area. Indeed, many authors (Barrett 1974; Yoakum 1978a) make reference to the importance of winter survival, especially as regards snow depth, as the single, most important factor in determining the species' abundance. When storms leave accumulations of deep snow behind, the effect on pronghorn and other animal populations can be devastating (Barrett 1978). Recent examples of bad winters are 1951-52, 1964-65, 1973-74 and 1977-78 (Barrett 1978). Indeed, older stockmen in this area have stories of their livestock freezing standing up during a particularly severe storm in the winter of 1964-65.

The importance of winter survival has been acknowledged by Alberta's wildlife managers. In the summary of goals and strategies in Alberta's management plan for pronghorn (Glasgow 1990) it is stated that the "identification and protection of important pronghorn range, particularly winter range, will be a high priority" and "...development of suitable habitat enhancement techniques ...to alleviate high levels of mortality during severe winters will be investigated."

Perhaps the single, most important reason pronghorns have moved further north is the prolonged period since the last severe winter (1978). The recent extended number of mild winters has allowed the Alberta population, especially the population north of the Red Deer River that Barrett (1974) described as less stable, to build up and expand its range.

Another factor is that the northern pronghorn seem very adaptable in their winter strategies. Traditionally, particularly in the Canadian portion of their range, pronghorn are thought to move to winter ranges that have an abundance of silver sage *(Artemisia cana)* (Barrett 1974). In the Hanna area, this plant is most readily found in and near the valley of the Red Deer River, sometimes in profusion. To get to this area some northern pronghorn have traveled up to 150 km (Barrett 1974).

The Red Deer River also appears to act as a barrier to further southward movement of the pronghorn. During most winters, large groups of the animals collect on the



north side of the river (especially north of Buffalo), while virtually none can be found on the south side.

Other effective barriers to pronghorn movement are the east-west Highway 9 and the railroad on its north side (see map). Pronghorn appear reluctant to cross the busy highway, and the pagewire fence on both sides of the railroad forces them to cross only where country roads penetrate the fence. Often groups of pronghorn appear to bunch up on the north side of the railroad. Also, with pronghorn now ranging as far north as the North Saskatchewan River, the distances south to Highway 9 are close to the maximum for seasonal movements recognized by Barrett (1974). The animals that summer adjacent to Highway 9 are close to this maximum from the Red Deer River. Considering this situation there is pressure on the pronghorn to adapt to a winter vegetation type north of Highway 9.

North of Highway 9 there is essentially no silver sage. Barrett (1974) considered silver sage vital for pronghorn winter survival in Alberta. Despite this, more and larger groups of pronghorn winter north of Highway 9 (Gainer 1991). What became interesting to me is how they adapted their diet and habitat preferences.

For the past seven years I have lived in the Hanna area where, because of my predominantly agricultural veterinary practice, I soon became acquainted with local farmers and ranchers. Over time, they realized my aesthetic interest in the animals and readily volunteered information on their whereabouts or anything else they thought was of interest. My work also required me to drive throughout the area, which allowed me to locate groups of pronghorn and to identify the vegetation with which they were associated. On weekends in winter, I would often go looking for a pronghorn group in my own small aircraft (a 1952 PA-20).

When I located a group, I made note of the particular habitat and vegetation it seemed to be attracted to. By the end of the winter I would have an idea of what features of the environment and diet the animals had depended upon during the winter season. Although rumen analysis was not utilized, I gained definite impressions of what foods the pronghorns were using to substitute for silver sage in order to survive the winters this far north.

The closest group, and the one with which I became most familiar, centered around Wolf Creek, a small stream that runs for about 20 km from the west into the western end of Dowling Lake, 20 km northwest of Hanna. Here, there is a microhabitat of about 2,000 hectares that experiences "mini" chinooks, probably as a result of the neighboring Hand Hills 10 km to the south and high ground 10 km to the north. Sometimes in the winter (as seen from the air), this area will be bare when the surrounding land will be snow-covered. The snow accumulation here is generally less than for any place within 100 km.

Dowling Lake, adjacent to this area, is one of approximately a dozen sloughs or alkali ponds that comprise the local Chain Lakes system. Associated with these lakes and their surroundings are alkali salts. In this area the bedrock is near the surface and surface water draws the salts to the surface. This salinization of the soil makes it infertile and virtually useless for agriculture. Along the edges of the Chain Lakes, the local Agriculture Service Board has planted thousands of hectares of alfalfa in what is apparently a successful effort to desalinize the soil and reclaim the land for agricultural production. In general, land in the area of Wolf Creek that is still in native pasture has significant components of pasture sage *(Artemisia frigida)*, blue gramma *(Boutelia gracilis)* and needle and thread grass *(Stipa comata)*—xerophytic vegetation typical of mid to short grass regions. Farms in the area are primarily involved in cereal grain production with some cattle pasture and about 20 percent summer fallow.

There is much variation in the climate in the area. The summers from 1988-90 were dry and crops were poor. The next four years the area had good rains and above average crops; last summer was dry and crops poor. The first three winters (1988-91) were dominated by chinooks; the small amount of snow that did fall did not last for more than a week or so. The next two winters (1991-93) had more snow and it lasted longer. The winter of 1993-94 had the most snow, and it accumulated for most of the winter without a chinook melt. The last winter had a moderate snow cover present for the first half and mostly bare ground for the second half. Except perhaps for the winter of 1993-94, snow depth was not significant.

The approximate number of animals in the Wolf

Table 1. Wolf Creek Pronghorn

Winter Year	Associated Habitat/Vegetation	Food Preference	Snow Cover
1988-89	Fall rye; stubble fields; native pasture	fall rye	minimal
1989-90	Summerfallow field	stinkweed	minimal
1990-91	Unharvested alfalfa; wheat stubble	alfalfa	minimal
1991-92	Barley pile; Wolf Creek native grasses; stubble fields; summerfallow	barley	moderate
1992-93	Barley (spilled and unharvested); native grasses; stubble field; summerfallow	barley	moderate
1993-94	Standing wheat and alfalfa	wheat	significant
1994-95	Unharvested alfalfa and barley; barley and wheat stubble; summerfallow native vegetation	alfalfa, barley, wheat, dandelions	moderate

Creek group was 200. The highest count I made was 187 in the fall of 1991. I assumed there were a few more as the group size was always changing. Early winter groups were little more than expanded "harems" of 5-10 animals. Then groups of 35-60 formed, and, usually in the middle of most winters, a large herd of 130-200 animals formed. Locals often estimated these herds at 300-500, but I never confirmed such group sizes.

Adult males always seemed underrepresented. There would be at least one adult male in the smaller groups and the larger groups included up to 4-5 males. In late November to early December, when the animals were congregating for the winter, the adult male component seemed closer to their usual 20 percent of the population. It is possible that males excluded from the groups moved south for the winter. Also, locals sometimes reported seeing a lone male overwintering with their stock and eating their feed.

The Wolf Creek pronghorn were not hunted until the fall of 1994. At first I thought this lack of hunting pressure was a factor in their attraction to the area for the winter, but following the 1994 hunting season their movements did not appear to have been affected. By mid-December the animals were as tame as ever, spending time in some farmers' yards within meters of their occupied homes. Poaching by locals is probably negligible; most of the farmers enjoy having the pronghorn for company and don't mind purchasing their beef.

Table 1 provides information on habitat and vegetation associated with wintering Wolf Creek pronghorn.

The most common vegetation associated with pronghorn occupation in the Wolf Creek area was poorly harvested alfalfa. In this area, there are fields grown specifically for hay and fields grown specifically to desalinate the effects of the nearby Chain Lakes. Both are often left quite tall for winter. When given the opportunity, however, the pronghorn utilize plants other than alfalfa, for example, the stinkweed of 1989-90, the barley of 1991-92, and the unswathed wheat of 1993-94. The apparent preference for unswathed wheat over alfalfa may have been because of snow cover. The animals favorite forage was probably the stinkweed and dandelions. Next they seemed to favor the green fall rye that was occasionally available and uncovered by snow. Of the cereal grains they apparently favored barley, but when nothing else was available they were not reluctant to utilize wheat. They definitley preferred wheat stubble for resting.

Table 2 shows the habitat and food utilized by other pronghorn groups in the Hanna area.

Although it was not possible to determine if the Wolf Creek and other pronghorn in the Hanna area would have preferred silver sage to what was available, the overwintering of these groups of pronghorn this far north does demonstrate their ability to survive and do well without it. If the animals do not need to migrate to areas of silver sage they can inhabit range much further north. Bruns (1969) recognized that pronghorn had behavioral adaptions to winter besides migrating south for energy conservation.

Indeed, the pronghorn in the Hanna area appear to be much more flexible and opportunistic than what would be suggested from the literature. Here, at the transition zone between large grazing leases of uncultivated, semi-desert, native grasslands that include several species of sage, and dryland farming mixed with grazing, it is obvious that pronghorn are more plentiful in the latter, summer and winter. They appear to like the edge effect and diversity associated with the mix of habitats. It may be that the "monoculture" native prairie of the vast grazing leases with which pronghorn are traditionally associated does not have the required habitat diversity necessary for winter survival, and because of this, winter movements to silver sage are necessary.

Some studies (e.g., Yoakum 1978a) have recognized pronghorn utilization of cereal crops, and others make reference to the utilization of partially harvested alfalfa.

Table 2. Other Pronghorn in Hanna Area

Location & No. of Animals	Year	Associated habitat/vegetation
Delia (50)	1991-93	Dry slough bottom; scentless chamomille
	1993-94	Dry slough bottom; unharvested peas, wheat and barley
	1994-95	Dry slough bottom; unharvested alfalfa and barley; wheat stubble
Michichi (10-15)	when observed	Native vegetation in coulee; unswathed alfalfa; fall rye
25 km NW of Wolf Ck. (15)	when observed	Alfalfa and cereal crops
Junction of Hwys 9/36 (20-30)	3 winters	Summerfallow weeds; volunteer canola; fall rye
	1993-94	Standing alfalfa and wheat (15 km south of Hwy 9)
Scotfield (15-20)	1987-95	Alkali slough bottoms; fall rye; stubble fields; scrub aspen for cover
Youngstown (10-20)	when observed	Slough bottom; fall rye and alfalfa
Chinook (25-50)	1993	Slough bottom; fall rye
	1993-94	Standing wheat
South of Chinook (50)	several winters	Fed wheat by rancher
10 km N. of Red Deer River & south of Chinook (80-200)	when observed	Fall rye
Esther (10-15)	when observed	Slough bottoms

However, the extent to which these crops are used by Hanna area pronghorn is greater than previously discussed. In some winters, cereal grains seemed to be the primary component of their diet The pronghorn's greatest preference appeared to be for the products of summerfallow when it had not been turned under in the fall, and snow cover allowed access to it. It appears as though the animals live off the products of summerfallow for as long as they can before being forced to utilize alfalfa and cereal crops.

Bruns (1969) thought pronghorn, like saiga, were opportunistic in their movements and only moved if they had to. This study of pronghorn winter food habits generally supports Bruns' theory, but during my period of observation there was no really severe storm and snow accumulation. A bad winter would have more surely told us whether pronghorn have the ability to survive winters this far north without having to move to an area of silver sage. In the winter of 1993-94, there was high snow accumulation, but the serendipitous conditions of the previous fall meant wheat and alfalfa were standing over a meter high. Pronghorn along the length of Highway 9 all depended upon standing wheat that winter.

It is possible that during a really severe storm and snow accumulation, when there was no coincidental standing, unharvested crop protruding through the snow, that the animals could have availed themselves of the haybales of alfalfa usually left in the fields or the feedstacks throughout the area. Another factor is that virtually every harvested field has tufts of standing crop in the corners where the swather has a difficult time making the corner. These mini stands of cereal grain are almost always available throughout the winter.

Most important, the presence of pronghorn groups north of Highway 9 demonstrates the species' ability to expand during a prolonged period when winters are not severe and there is no necessity of movement to areas of silver sage abundance. Therefore, the single most important factor in the pronghorn's range expansion is weather. Secondly, the Wolf Creek group, by far the largest in the area, is supported by a local phenomena that creates a microclimate of reduced snow accumulation. In addition, the east-west Highway 9 and railway may also act as selective barriers to the southern movement of that group and other Hanna area pronghorn. Finally, the diversity of vegetation associated with mixed dryland farming has meant that the pronghorn have had available to them more strategies for surviving winter conditions than those offered in semi-desert grasslands. Standing cereal crops and alfalfa were most important during a winter of snow accumulation; otherwise summerfallow growth and fall rye were preferred. Most winters the pronghorn used a combination of summerfallow with fields of cereal grains, standing alfalfa and native plants.

Acknowledgements:
I would like to thank E. Hofman and the rural residents of the Hanna area for their generous assistance.

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"Hepburn's" Gray-crowned Rosy-Finch in Alberta

Doug Collister

Within the prairie provinces, the Gray-crowned Rosy-Finch breeds in alpine areas of southwestern Alberta and winters sporadically in the lowland valleys and foothills of southern and central Alberta and southwestern Saskatchewan. Breeding habitat is comprised of rocks and cliffs among glaciers and permanent snow above the timberline. In winter, fields, roadside, straw stacks, farmyards and other open places are preferred (Godfrey 1986).

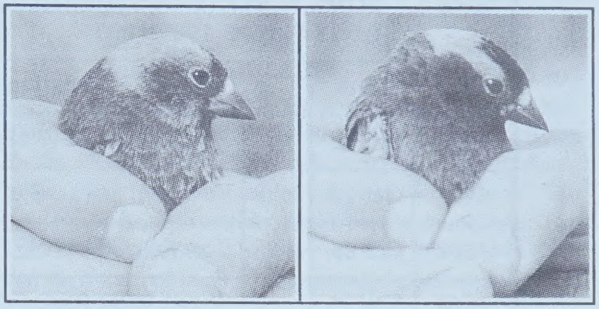
Two subspecies are recognized. *Leucosticte tephrocotis tephrocotis,* or the "Interior" form, is characterized by a narrow gray area on the head and is the expected form in Alberta. *L. t. littoralis,* or "Hepburn's" form, is characterized by a larger amount of gray on the face and is the form of southwestern Yukon and western British Columbia (AOU 1993; AOU 1983; Godfrey 1986; Scott 1987).

Hepburn's form is known to stray far from its western range. One was collected near Minneapolis, MN on 3 January 1989, while another was banded in Maine on 15 December 1936 (Bent 1968).

On 29 March 1993, I mist-netted and banded 17 Gray-crowned Rosy-Finches approximately 3 km southwest of Water Valley in the foothills of southwestern Alberta. Of the birds captured, 2 were of Hepburn's form. A flock of approximately 50 were visiting the feeder where the mist-netting took place, and at least 5 of the flock were Hepburn's form. In 1994, a flock of 200 Gray-crowned Rosy-Finches were present briefly, but despite extensive observation, no Hepburn's forms were detected. In 1995, a flock of 50 appeared on 26 April with no Hepburn's noted. Thirty were present including one Hepburn's on 27 April. In years previous to 1993, at this location, Hepburn's form was detected on two occasions. From 4-13 April 1990 up to 300 Gray-crowned Rosy-Finches, including at least 2 Hepburn's form, visited the feeder area. From 24 March to 9 April 1991 up to 7, including 1 Hepburn's form, were present.

Other observations known to me of Hepburn's form of Gray-crowned Rosy-Finch in Alberta are summarized in Table 1. With a few exceptions, all occurrences seem to be of a few birds within flocks of the Interior form. Although the evidence suggests that most flocks of rosy-finches likely contain a few Hepburn's form, there are exceptions. For example, from 10-12 April 1992, David Prescott banded 791 rosy-finches at the University of Calgary Kananaskis Field Station. He estimated more than 5,000 birds were present at the feeder. None of the birds he banded were of Hepburn's form, nor did he observe any Hepburn's form among the nonbanded birds.

Based on the available records, I conclude that Hepburn's form of the Gray-crowned Rosy-Finch occurs regularly in Alberta in small numbers, usually associated with flocks of the Interior form during the nonbreeding season. I know of no records of Hepburn's form breeding in Alberta. It is likely that additional occurrences of Hepburn's form have been overlooked, as rosy-finches are active birds and surprisingly hard to study when they are foraging along roadways or on hillsides. Observers should be aware of the potential occurrence of Hepburn's form and, where possible, carefully examine flocks of rosy-finches for it.



Hepburn's (left) and Interior form (right) Gray-crowned Rosy-Finch Photo: D. Collister

I wish to thank Clay Hunt of Water Valley for allowing me to band Gray-crowned Rosy-Finches at his bird feeding station and Mairi Babey for providing a computer listing of rosy-finch records from the Calgary Field Naturalists' ornithological computer database. Wayne Smith, Peter Sherrington and Dale Paton generously pro- vided observations from their field notes. David Prescott reviewed and improved an earlier draft of this note.

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Table 1. SOME ALBERTA OBSERVATIONS OF HEPBURN'S FORM OF GRAY-CROWNED ROSY-FINCH 1960-1995

Year	Date	#	Location	Additional Information	Source
1966	Oct 22	200	Porcupine Hills W of Nanton	with 500 interior form	WWS[a]
1967	Oct 29	3	Vermilion Lakes, Banff NP	with 7 interior form	WWS
1967	Oct 29	25	Bow Falls, Banff NP	with 215 interior form	WWS
1969	Nov 25	1	Sheep River Ranger Station	with 4 interior form	WWS
1970	Mar 8	1	Banff townsite	with 4 interior form	WWS
1975	-	1	Pigeon Lake	present during winter 1974/75	[d]
1975	Nov 15	1	Edmonton	present through Nov 21	[d]
1977	Oct 26	1	Pinhorn Grazing Reserve		[d]
1980	Apr 21	2	Bottrel		[d]
1988	Apr 1	1	Windy Point	with 15 interior form	WWS
1989	Feb 25	1	Porcupine Hills E of Claresholm	with 39 interior form	WWS
1989	Oct 15	6	Windy Point	with 500 interior form	WWS
1989	Oct 16	1	Windy Point	with 65 interior form	WWS
1991	Mar 3	1	Writing-on-Stone PP	with 1 interior form	PFS[b]
1992	Mar 1	30	Waterton townsite	with 220 interior form	WWS
1992	Oct 28	5	Mt. Lorette		PFS
1993	Mar 28	5	Windy Point	with 40 interior form	WWS
1993	Nov 2	1	Windy Point	with 14 interior form	WWS
1993	Nov 5	1	Windy Point	with 24 interior form	WWS
1995	Jan 19	1	Cochrane	with 2 interior form	PFS
1995	Apr 20	23	Blairmore	in a flock of 800+	DP[c]
1995	May 1	9	Blairmore	in a flock 0f 150	DP

[a] from field notes of Wayne W. Smith of Calgary
[b] from field notes of Peter F. Sherrington of Calgary
[c] from field notes of Dale Paton of Blairmore
[d] Pinel *et al.* 1993

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The Canadian Lynx

Peter A. Sulzle

For those of you who have encountered a lynx in the wild, it must have been an unforgettable experience. The lynx pictured here is captive, but I still felt the wilderness in him when I looked into his eyes. With a total mature body length nearing 100 cm, long legs and large, thickly furred feet in winter, this cat is very well-equipped to stalk prey in snow. This remarkable creature, which inhabits forested areas of Alberta, is secretive and expert at avoiding humans.

The lynx's population seems to peak every 8 to 10 years, parallelling that of the snowshoe hare. During this time, litters of four or five kittens can be common. When the hare begins its low cycle, however, a smaller number of lynx females mate and litters drop to two or three. The lynx can be easily mistaken for its cousin the bobcat. Two identifying traits of the lynx are the long, black ear tufts and the oversized paws. The lynx—a true survivor of Alberta's north.

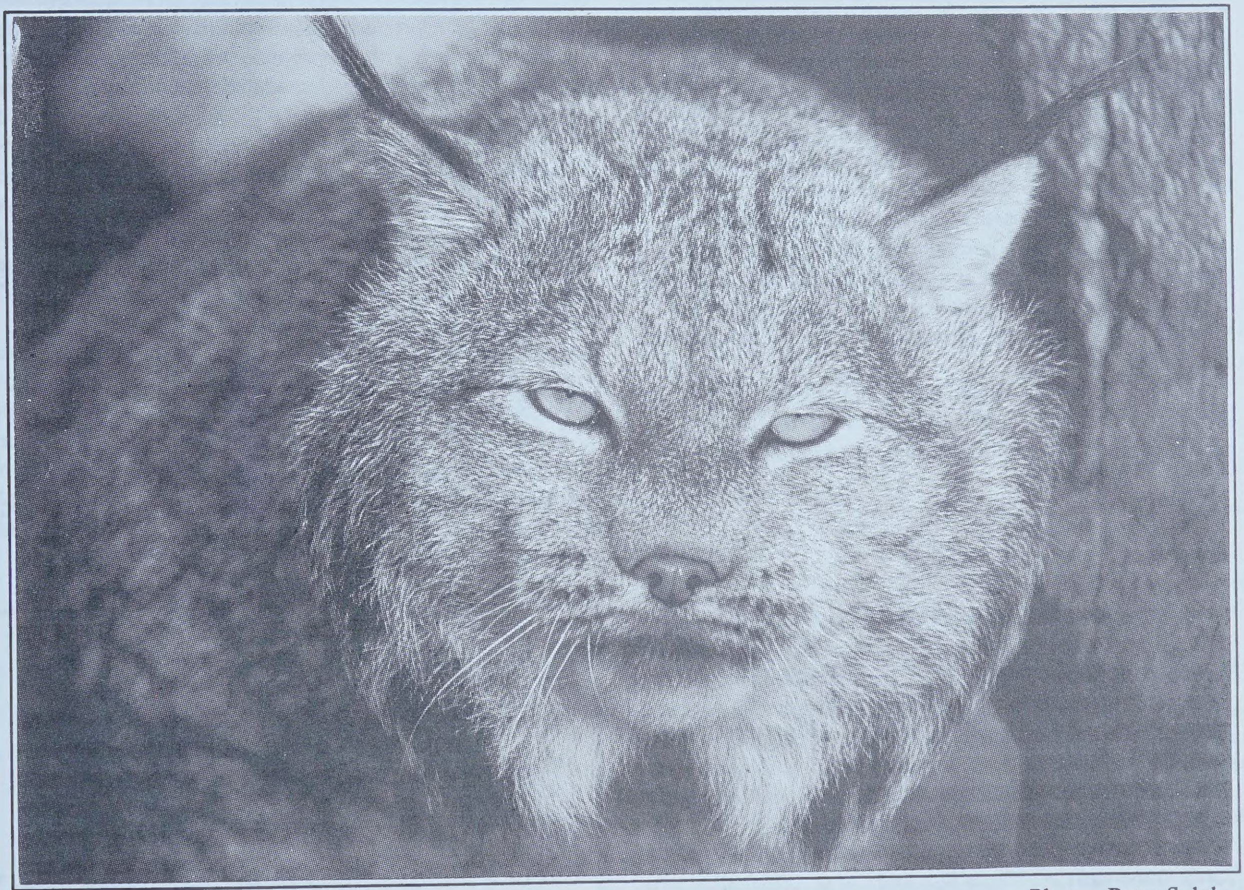

Photo: Peter Sulzle

Canadian Lynx

Peter Sulzle is a wildlife photographer and naturalist in the City of Edmonton.

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Canadian Nature Federation Conference

The 1996 Canadian Nature Federation Conference, hosted by the Manitoba Naturalists Society, will take place August 15-18, 1996. Robert Bateman will be the special guest. The conference package is available January 1996 from the CNF Conference Registrar, 401-63 Albert Street, Winnipeg, Manitoba R3B 1G4.

Short-eared Owl Information Wanted

Researcher working on study of Short-Eared Owls on the prairies wishes to receive any information concerning breeding sites, wintering territories and counts on the Short-Eared Owl. Please contact Ivan Shukster, Phone/Fax (403) 526-1366, 451 - 3rd St. S.E., Medicine Hat, Alberta T1A 0G8.

Special Places 2000

The Federation of Alberta Naturalists has been an active member of the Provincial Coordinating Committee (PCC) for the past four months. There have been successes as well as disappointments in this period. FAN's role on this committee is still being questioned by some groups, including its own member clubs. This commitment by FAN is under constant review by its representatives on the committee.

It is felt that the other members of the PCC, although they may have little background or experience with protection issues or the consensus process, are sincere and are putting great effort into trying to make the process work. When there have been problems at the political level, the Minister of Environmental Protection has, from our perspective, resolved the majority of them in a positive manner. It is also true that to this point in time the PCC process has not been challenged with any really tough decisions.

Nomination dates for the Canadian Shield, Rocky Mountain and Foothills natural regions have passed, and closing dates on the remaining natural regions have not been finalized. The PCC has received the nominations for the Canadian Shield and will be dealing with their disposition at its January meeting.

The Order-in-Council on the Upper Elbow-Sheep and Kakwa nominations is proceeding much slower than anticipated, but should be to Cabinet some time in January.

Express Pipelines

This proposal, as outlined in the last issue of the *AN*, will go to hearings on January 15, 1996. The federal Minister of Environment, Sheila Copps, has appointed a four member panel to review this proposal. The members are Roland Priddle, Chairman of the National Energy Board (NEB); NEB member Anita Cote-Verhaaf; Dr. Glennis Lewis, a Calgary consultant; and Dr. Richard Revel, University of Calgary professor of environmental science.

The Federation, along with the Alberta Wilderness Association and the Alberta Fish and Game Association, will be intervening at the hearings. The concerns relate to reclamation issues (two-thirds of the line as presently proposed goes through unbroken grasslands), stream crossings and wildlife disruption (both habitat and sensory disturbance). Although the applicant company has been very responsive, several issues remain outstanding because of time constraints, concerns over the willingness of the regulatory agency (National Energy Board) to permit new techniques, and delays in research. There are ongoing discussions with the proponent and its consultants.

Limestone Valley Resort Proposal

This golf course\resort complex at Dead Man's Flats was proposed on crown land in the Bow\Canmore Corridor. Initially, it was reported that this development would proceed without an Environmental Impact Assessment Report and that Alberta Environmental Protection would allow it to proceed with just an internal screening report. Concerns were raised by several organizations including the Bow Corridor Wildlife Technical Committee and FAN.

The courts have now ruled that the Alberta government must require an Environmental Impact Assessment for this project. The proponent has not indicated whether it wishes to proceed with the project. A draft terms of reference for the EIA should be issued in the near future.

Logging on Private Land

This issue was brought to the attention of the Minister of Environmental Protection early in 1995. At first there was little action by any of the regulatory agencies with the exception of some monitoring, which confirmed the magnitude of the problem. In December 1995, Alberta Environmental Protection finally came out with a regulation requiring a permit to be issued before logging can take place on private land. As a result, logs can be transported within or out of province only with a valid logging permit. This will help curtail the poaching of logs from crown land. However, the question of logging practices carried out on private land has yet to be addressed.

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Issues

Endangered Species Legislation

FAN has been supporting a national coalition that has been lobbying the federal government for strong endangered species legislation. The draft of the legislation was released earlier this year but was somewhat disappointing. The first deficiency in the legislation is that it contains no legal provisions for protection of the habitats of endangered species. Secondly, the proposed legislation mandates that federal agencies draw up response statements and recovery plans for endangered species, but it does not obligate any agency to put real conservation measures into effect or require that projects be evaluated in terms of their potential impact on threatened and endangered species. There are no proposed mechanisms for protecting a species until it reaches the endangered status, at which time its recovery is likely to be more difficult and expensive to achieve. The proposed legislation applies only to federally controlled lands and waters, which account for only a small fraction of Canada's surface area. These concerns were conveyed in a letter to the federal Minister of Environment by over one hundred of Canada's leading scientists.

Provincial wildlife managers have been meeting with federal wildlife agencies to put together "A National Framework for Endangered Species Legislation." Its objective is to provide a harmonized national approach to endangered species conservation and prevent any species from becoming extinct as a consequence of human activities. Some of the underlying precepts for this framework are as follows:

- the primary legislative responsibility for wildlife in Canada rests with the provinces, except for migratory birds, fish, marine mammals and other aquatic organisms;
- the involvement of all Canadians is essential, especially consultation with aboriginal groups with recognized rights and responsibilities for wildlife;
- endangered species conservation initiatives should be approached through complementary federal and provincial/territorial legislation, regulations, policies and programs;
- an effective and complete national endangered species conservation framework must be able to address all indigenous nondomestic organisms;
- the conservation of endangered species is a key contributor to a broader strategy that maintains biological diversity and requires all jurisdictions to cooperate to sustain ecosystems, prevent species from becoming at risk, monitor the status of species, identify and designate those at risk and respond with appropriate actions at both the national and local\regional scales; and
- where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize a threat.

Endangered species conservation will be addressed through a national partnership that recognizes, harmonizes and coordinates the responsibilities and interests of all jurisdictions responsible for wildlife management. The Canadian Endangered Species Conservation Council comprised of Ministers responsible for wildlife would be responsible for the National Framework and its implementation.

On the provincial scene, our Premier has promised provincial endangered species legislation. The Federation has been asked by Alberta Fish and Wildlife to sit on a committee to assist in the review of the drafting of this legislation. Presently, legislative provisions for endangered species occur within the *Wildlife Act.* An assessment should be done to ascertain whether free standing legislation is preferred to amendments to existing legislation. There is also a need to ensure that all provincial legislation is interpreted and applied in a manner that is consistent with and supportive of the restoration of endangered and threatened species.

Attention all Environmentalists, Naturalists, Biologists, and Students of all Kinds:

Concordia College will be holding its annual **Environmental Awareness Week** January 22-26. This year we wish to broaden the concept of "environment" to cover as many aspects of biology, ecology and human/animal health as we can. It is for this reason that we are extending an invitation across Alberta to absolutely anyone who wishes to speak, display, or simply attend the events during the week. If you are a **company involved with environmental concerns, a charitable organization, a student working on a masters thesis, or just a curious person who has something to say,** please contact Shayla Huber by fax, phone or letter at the numbers below. We will regularly update all who show interest on the schedules of events as responses are received.

Thank you for your support, and please spread the word!

Shayla Huber, Science Representative
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Type Localities of the Butterflies Cary's Arctic (*Oeneis caryi* Dyar) and Christina Sulphur (*Colias christina* Edw.)

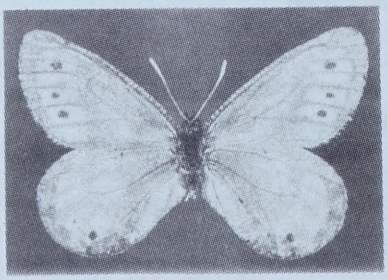
Norbert G. Kondla

The purpose of this note is to clarify the type localities of two butterfly taxa that have been described from material collected along the Slave River in extreme northeastern Alberta.

Oeneis caryi (currently placed as a subspecies of *Oeneis chryxus*) was described by Dyar (1904) on the basis of one male collected by M. Cary in 1903. Dyar listed Smith Landing, Athabasca as the type locality. Clarification is needed to allow researchers to locate the type locality and to more accurately pinpoint the collection site of the type specimen.

When Dyar described *O. caryi*, Athabasca was one of the Northwest Territories. In 1905, the province of Alberta was established and the area in question became part of Alberta. Miller and Brown (1981) saw the difficulty and listed Alberta in brackets after the political entity of Athabasca, which had been defunct for 85 years and was no longer useful in a contemporary description of the type locality. Unfortunately, Tilden and Smith (1986) retained use of Athabasca in referencing the type locality and presented it such that most readers would interpret it to be a political subdivision of Alberta.

Smith Landing is not found on contemporary maps. The location was renamed some years after Cary's visit to Fort Fitzgerald (Mackinnon 1980). Contemporary official government maps describe this locality as Fitzgerald or Fitzgerald Settlement (the latter running along 8-10 km of the Slave river). In any case, Cary did not collect the type specimen at the place once known as Smith Landing. Cary (1906) was quite explicit about having collected it "on the Smith Portage." He also mentioned butterflies being numerous "along the portage trail." Further, in his paper, he was careful to distinguish between butterflies caught at Smith Landing and those caught on the Smith Portage. It seems, then, that Dyar listed Smith Landing as the type locality because it was the nearest human settlement with a name. In fact, Cary collected the type specimen somewhere northwest of what was known as Smith Landing along the portage trail which, according to Mackinnon (1980), was a wagon trail at that time. Presumably the location was within walking distance of Smith Landing, although this is not certain.



Cary's Arctic (male dorsal view)

Since the type locality does not have a specific contemporary place name and the location can be determined only to within a few kilometers along the west side of the Slave River, I suggest that the type locality be referenced as "vicinity of latitude 59° 54' N, longitude 111° 40' W near the west side of the Slave River, Alberta."

Pinpointing the actual collection place of the types of *Colias christina* (erroneously placed as a subspecies of *C. alexandra* by most authors since the 1960s) is not as straightforward as the previous taxon.

Edwards (1863) simply stated "portage of Slave River" as the origin of the type series. He later (Edwards 1884) clarified this description by stating that the type series was taken "about latitude 60°." Cary (1906) tightened things up by identifying the type area as " Smith Rapids, Athabasca." Up to this point the description seems to be reasonably clear, with the understanding that the type area ceased to be in the Northwest Territories in 1905. However, contemporary literature has conflicting statements about the type locality.

For example, Hooper (1973) states the collection point was "near the Smith Rapids in northern Alberta," and Bird et al. (1982) refer to Smith Portage in Alberta. Howe (1975) moves the type locality to Great Slave Lake, Northwest Territories. Gillette (1987) places the type locality near Great Slave Lake. Ferris (1973) refers to a "Slave River Crossing, N.W.T.." Brown (1973), Miller and Brown (1981) and Tilden and Smith (1986) refer to the Slave River portage, but place it in the Northwest Territories. Most recently, Ferris (1988) repeats the "portage of the Slave River, N.W.T." version but, curiously, does not include any point along the Slave River within the mapped range of this taxon.

When Christina Ross collected the type series in 1862, there were few place-names in this corner of the world. Even the country of Canada did not exist. Fort Smith was not established until 1874 and the "Smith Portage" of Cary's visit also did not exist (Mackinnon 1980). Smith Rapids is also not a helpful description of the type locality since this name refers to a group of several rapids.

It is clear from the entomological and historical literature that we are dealing with a 24-26 km stretch of the Slave River between the modern stettlement of Fort Smith, Northwest Territories and Fitzgerald, Alberta. Along this stretch of river are four gneissic ledges that form named rapids. From south to north these are Cassette Rapids, Pelican Rapids, Mountain Rapids and Rapids of the Drowned. It was on a portage along this stretch of river that *C. christina* was first collected. But what portage, and is it now located in the Northwest Territories or Alberta? Some informed speculation is needed to answer these question.

As pointed out by Bird et al. (1982), Christina Ross was the spouse of Bernard Ross, who looked after the fur trade in the region for the Hudson's Bay Company. During the spring of 1862, Bernard would have overseen the trading of company goods for furs brought in by aboriginal trappers as a result of their winter trapping activities. Canoes or york boats were then used to transport the fur cargo along the rivers and lakes, which were the only transport routes available at this time. Given the reason the Ross's were travelling through this area, it is most likely that Christina collected the type series while travelling upstream. Edwards' (1963) comment that Christina was "late of Fort Simpson," renders unlikely a downstream trip in the summer of 1862.

Christina Sulphur (male dorsal view)

The direction of travel is important in attempting to locate the collection site in either Alberta or the Northwest Territories. Information provided by Mackinnon (1980) on how travellers circumvented the four sets of rapids suggests that the only substantive portage where there would have been time for butterfly collecting was the portage around the Mountain Rapids. Historical information also suggests travel (upstream) through this stretch of river would normally have started at a Metis settlement at the mouth of the Salt River several miles below the Rapids of the Drowned and would normally have taken more than one day. There would have been little reason to dally at the short Rapids of the Drowned portage in the present Northwest Territories.

Using contemporary names, the type locality can be usefully referenced as "near the Slave River between Fort Smith, Northwest Territories and Fitzgerald, Alberta." Readers who accept the rationale for the Mountain Rapids locality can reference the type locality of *Colias christina* as "vicinity of Mountain Rapids, Slave River, Alberta."

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It's a Small World - Rescuing the Lion

Don Hilton

Adult insects are hard enough to identify, but their immature forms, such as the caterpillar stages of moths, are very difficult due to the lack of easy-to-use identification manuals. Consequently, if you find caterpillars chewing holes in the leaves of your favorite garden plants and you want to find out how to get rid of the beasties, it would make identification much easier and far more certain if the uninvited diners could be reared to their adult stage.

Even more than garden plants, forest trees can provide a bountiful feast for various insects, and when an insect population becomes abundant enough to compete with us for trees that we would rather monopolize for our own uses, then humans and insects are on a collision course. Insects such as the spruce budworm, *Choristoneura fumiferana,* fall into this category. This species has become very well known through research programs probing each minute aspect of its daily life. This research has gone on for generations and we have learned enough to kill millions of insectivorous songbirds as a byproduct of spraying pesticides over our forests, but we still can't eliminate the spruce budworm. We can, however, identify its larval stage with certainty. This is not the case for the vast majority of forest insects and, therefore, the Canadian Forest Service has field personnel collecting insects they find on trees and forwarding these specimens to central rearing facilities (insectaries) where they will be raised to adulthood for positive identification.

The insectary staff essentially run a jail for tiny inmates who, though they don't know it, are all on death row. Given a choice, the "inmates" undoubtedly would prefer to be elsewhere, but at least their essential needs are looked after during their enforced confinement. Satisfying these needs involves providing food (such as the correct kind of leaf), water, suitable levels of light, humidity and temperature, as well as removing uneaten vegetation and "shovelling" out the manure. Given the right rearing conditions, the larvae will eventually grow and metamorphose to the adult stage. Free lunches are over at this point and the freshly emerged adult in its new suit of clothes is sent off to the entomological gas chamber (a killing jar in which there are vapours of such compounds as potassium cyanide or ethyl acetate). Following execution, the unfortunate beast is transfixed by a special insect pin and, with its wings spread, added to a cabinet of previous victims for later identification by entomologists who are specialists in the group to which the insect belongs.

Rearing procedures can be complicated and require detailed knowledge of insect life histories. However, the daily routine of stuffing leaves into cages and shovelling manure doesn't require much more skill than any stable hand needs for carrying in hay and mucking out barns. Consequently, these rearing activities are generally given to undergraduates who have applied for summer jobs. Thus, the summer following my first undergraduate year as a Biology student found me working for Forestry Canada (as it was then known) in its Calgary, Alberta insectary.

One might think that dealing with hundreds of insects each day would be more than enough to satiate even an entomologist's desires for close encounters of the creepy-crawly kind. Not so for me! On weekends, I would go out on collecting trips and bring back all manner of interesting critters.

On one occasion, a like-minded friend and I caught a number of giant water bugs. There are several species of these belonging to the family Belostomatidae, but the species common throughout southern Canada and the northern United States is *Lethocerus americanus.* This is quite a large insect (about 4.5-6.0 cm in length), which lives in ponds and eats a variety of animals, including tadpoles and minnows. Sometimes these water bugs are called "electric light bugs" due to a tendency during certain times of the summer to leave their ponds and fly around street lights.

We brought a few *Lethocerus* back to the insectary and placed them in a well-appointed aquarium along with a number of minnows. Giant water bugs have a short sucking beak that they use to stab into their prey (while grasping it with their raptorial forelegs) and suck out its body fluids. We hoped to witness these feeding sessions at the expense of the poor, unfortunate fishes. As I recall, we never did see an individual *Lethocerus* actually capture a minnow, but on many occasions we saw them sucking the life blood out of fishes captured during times when duties required our attentions elsewhere. I suppose this was a rather sadistic activity on our part, but we did learn a lot about giant water bug feeding behavior, albeit at the expense of terrorized minnows.

In order to simulate a "natural" aquatic environment for our bugs we had placed rocks and pebbles in the bottom of the aquarium along with various water weeds. Although aquatic, giant water bugs don't have structures such as gills to breathe underwater. Instead, they must come to the surface periodically and extend a short breathing tube out of the end of their abdomen and through the surface film so they can exhale and take in a fresh air supply. One morning I entered the insectary and found one of our "pets" apparently drowned because a leg had become wedged between two rocks and it wasn't able to get to the surface to replenish its air stores. Reaching into the aquarium, I removed the bug and placed it on the table. No movement, no sign of life. If this were a human the obvious next step would be artificial respiration. Well, insects don't have lungs connected to their mouths by a trachea as vertebrates do. Even if they did, I'm not sure I would want to start blowing into the mouth of a giant water bug. As you might imagine, that sucking beak is not only good for slurping up the body fluids of fish; it's also quite effective at delivering a rather painful bite. Hence their other name, "toe biters."

Luckily, there was no need to test my bravery. The breathing system of all insects consists of a series of tubes called trachea that extend throughout the body. These tubes branch and subbranch so that eventually very fine branches known as tracheoles deliver oxygen to individual cells and remove carbon dioxide in return. This carbon dioxide then passes back up the tracheoles to the trachea and eventually is exhaled by way of small openings (spiracles) along both sides of the body. However, giant water bugs, as you will recall, respire by extending their breathing siphon through the water's surface. This means that their tracheal system connects directly to the siphon and all air goes in and out of this tube. Any attempt at artificial respiration would have to take into account this fact.

Turning the bug onto its back I pushed gently on its abdomen. This had the effect of compressing some of the internal tracheal branches, forcing the breathing tube to extend, along with a water droplet. Encouraged, I repeated this process of gentle compressions and relaxations for several minutes. Presumably, I was successful in bringing about internal air circulation because the bug gradually started to revive and flex its appendages. Eventually, its movements became quite vigorous and I was able to return it to its home away from home, where it eventually resumed its usual predatory activities.

I don't's imagine that this incident will prompt the Red Cross to consider me for any lifesaving awards. Nevertheless, in some strange way that perhaps only another entomologist can understand, to this day I feel very good about having saved an insect's life. Our minnows, on the other hand, probably viewed me in the same light that early Christians looked upon the Romans when these oppressors threw them to the lions.

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Important Bird Areas Program

In September 1994, the Canadian Nature Federation (CNF) and the Canadian Centre for the Study and Preservation of Birds (CCSPB) signed a Declaration of Intent to become the official BirdLife International partner in Canada. BirdLife International is a non-governmental organization dedicated to promoting worldwide interest in and concern for the conservation of birds and the special contribution that they make to global biodiversity.

One of BirdLife's major campaigns is its Important Bird Areas (IBA) program. In Canada, the BirdLife Partner is responsible for implementing a Canadian IBA program. The focus of a Canadian IBA program will be to identify and protect areas of global, continental and national importance. As well, we will work cooperatively with provincial-level naturalist organizations in the identification and protection of sites of provincial importance. The IBA program is unique in that it is comprehensive; it fits into a global effort to identify important bird areas around the globe; and it is neither site nor species specific: it deals with all birds and all the sites they require to ensure adequate populations.

The identification phase is expected to take one to three years to complete. Results will be subsequently published in the Directory of Important Bird Areas in Canada. As the sites are identified, we intend to advocate for protection of these areas–through formal protected area designation, changes in land-use practices and development of local volunteer-based "warden" groups. The Federation of Alberta Naturalists and local naturalists' clubs could get involved in ensuring the protection of these sites.

It is no secret that we have designed a very ambitious workplan. Success lies stringently upon a coordinated and cooperative approach. We need to work in close contact with our international BirdLife Partners, the federal government and provincial agencies. Because birds know no borders, we believe that an integrated application of the IBA program in Canada is essential if we want to conserve this international resource.

If you would like more information about the Important Bird Areas Program or a copy of our fall newsletter (postage & handling fee of $2.00) please contact Christie Chute, Canadian Nature Federation, Important Birds Areas Program, 1 Nicolas St., Suite 520, Ottawa, ON K1N 7B7. Phone: (613) 562-3447, fax (613) 562-3371 or e-mail 72233.353@compuserve.com.

Rare Bird Sightings in the Boreal Forest of Northern Alberta

D. Lisa Takats

The Boreal Research Station was established by the Western Canada Wilderness Committee in the spring of 1993 to conduct avian ecological research in the boreal forest region of northern Alberta. After two years of research in the Footner Forest (La Crete, Fort Vermilion and Wabasca), surrounding upland marshes and Margaret Lake regions, many rare birds have been documented.

These birds have been classified as rare according to Stiles (1993) and the *Atlas of Breeding Birds of Alberta* (Semenchuk 1992) and/or are not shown to exist in the area (out of range) by recent range maps (Salt and Salt 1976; Semenchuk 1992). Rare bird forms were filled out for each of the sightings describing diagnostic field marks, calls or songs heard, how similar species were eliminated, previous experience of the observer and breeding evidence. Breeding evidence was recorded using the same breeding codes as in Semenchuk (1992):

Observed -species identified, but no indication of breeding;
Possible -species observed, or breeding calls heard in suitable nesting habitat;
Probable -pair observed in suitable nesting habitat;
Confirmed -nest building, nest with eggs or young seen, fledged young observed.

Birds were recorded in the Footner Forest area April 15 through August 31, 1993 and May 13 through August 31, 1994. The Footner Forest is dominated by white spruce *(Picea glauca)* and aspen *(Populus tremuloides)* with paper birch *(Betula papyrifera)*, balsam poplar *(Populus balsamifera)*, black spruce *(Picea mariana)* bogs and cattail marshes intermixed. Margaret Lake was surveyed from June 30 to July 4, 1993 and from July 23 to July 26, 1994. The lake is in the Caribou Mountains and is dominated by muskeg, open black spruce forest and permafrost. Smaller bog lakes surround the larger lake.

Twenty-eight rare birds were recorded by six researchers (including myself) between 1993 and 1994. These observations are described in the table below.

It is hoped the new Alberta Bird Record Committee will confirm these sightings. As well, in the future, research is needed to determine population estimates of confirmed species in northern Alberta. The reasoning behind the rare designation may in fact be because few studies have been conducted in this region. Future studies need to determine distribution, abundance and species-habitat relationships.

Acknowledgements:

I would like to thank Andy Miller, Chris Fisher, Dr. Jim Butler, Marke Ambard and Jeffrey Jarrett for their field notes and sighting information. As well, I would like to thank the Western Canada Wilderness Committee and Canadian Circumpolar Institute for their financial support.

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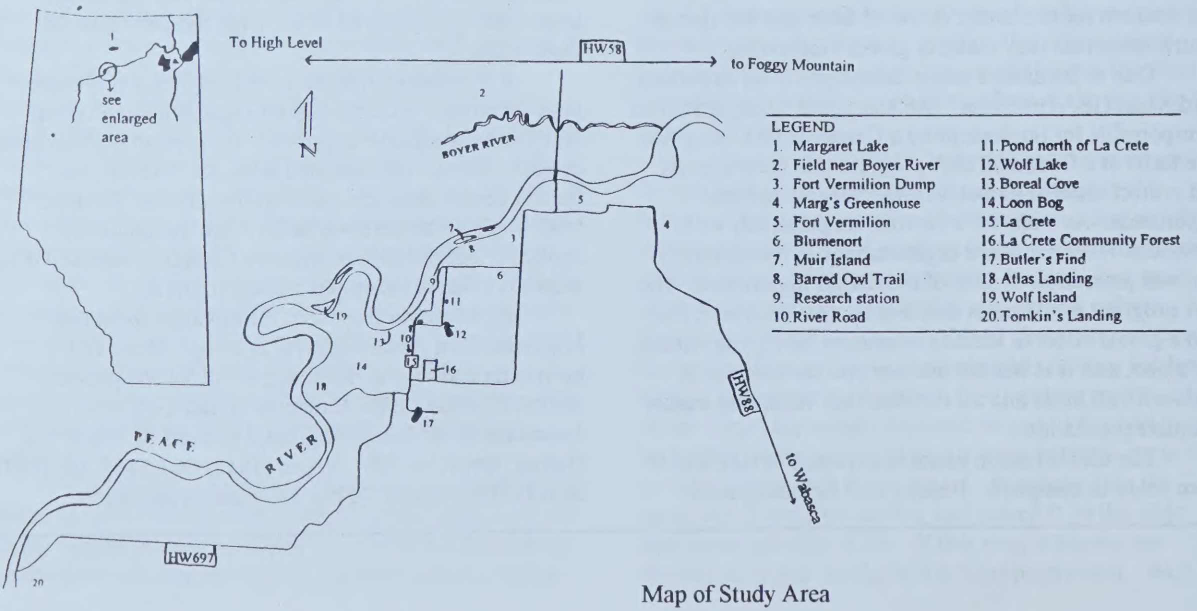
see enlarged area
To High Level
HW58
to Foggy Mountain
N
BOYER RIVER
PEACE RIVER
HW697
HW88
to Wabasca
LEGEND
1. Margaret Lake
2. Field near Boyer River
3. Fort Vermilion Dump
4. Marg's Greenhouse
5. Fort Vermilion
6. Blumenort
7. Muir Island
8. Barred Owl Trail
9. Research station
10. River Road
11. Pond north of La Crete
12. Wolf Lake
13. Boreal Cove
14. Loon Bog
15. La Crete
16. La Crete Community Forest
17. Butler's Find
18. Atlas Landing
19. Wolf Island
20. Tomkin's Landing

Map of Study Area

Species	**Breeding Evidence**	**Number**	**Location**	**Date**
Red-throated Loon	Probable	4 pair	Margaret Lake	July 2, 1993
"	"	3 pair	Margaret Lake	July 25, 1994
Western Grebe	Observed	1	Peace River near Muir Island	July 7, 1994
Great Blue Heron	Observed	1	Fort Vermilion dump in tree	June 1993
		1	Hwy. 58 near Foggy Mountain	June 23, 1994
Greater Scaup	Probable	3 pair	on pond north of La Crete	June 1993
Surf Scoter	Observed	flocks	spring migration at station	May 25, 1993 & May 13,1994
"	Confirmed	2 young with female	on a bog lake off Margaret Lake	July 25, 1994
White-winged Scoter	Observed	flocks	in migration at station	May 31, 1993
Barrow's Goldeneye	Observed	1 male	on pond north of La Crete	June 2, 1993
Hooded Merganser	Observed	1 female	on pond north of La Crete	May 22, 1994
Cooper's Hawk	Observed	1	Wolf Lake at research station	May 18, 1993
"	"	1	Peace River 3 km upstream from the research station	May 21, 1993
"	"	2	Peace River 3 km north of Atlas Landing	June 17, 1994
Broad-winged Hawk	Observed	1	Peace River 4 km south of station	June 23, 1993
Swainson's Hawk	Observed	1	east of Tomkin's Landing Ferry crossing	June 30, 1993
Peregrine Falcon	Observed	1	Wolf Lake	June 19, 1993
"	"	2	Peace River near Atlas Landing	June 17, 1994 & Aug. 9,1994
Virginia Rail	Observed	1	at Butler's Find	May 25, 1993
Curlew Sandpiper	Observed	1	at Butler's Find	May 23, 1993
Red-necked Phalarope	Probable	1000	on Butler's Find	May 23, 1993
"	Observed	25	on Margaret Lake	July 1, 1993
"	"	18 exhibiting courting behavior	pond on corner of Wolf Lake Road and River Road	May 22, 1994
Barred Owl	Confirmed	pair & young	on Muir Island	1993/94
"	"	pair calling	at Wabasca	May 30, 1994
"	"	1 owl heard	2 km north of Atlas Landing along Peace River	May 30, 1994
Boreal Owl	Observed	1 heard	Wolf Island	June 23, 1994
"	"	1 heard	Foggy Mountain	July 6, 1994
Long-eared Owl	Observed	1	near Blumenort	April 17, 1993
Short-eared Owl	Observed	1	in field near Boyer River	April 17, 1993
Ruby-throated Hummingbird	Observed	1	at research station	June 1993
"	"	1	at Marg's Greenhouse	1994
Pileated Woodpecker	Probable	2	on Muir Island	1993
"	"	2	on Barred Owl Trail	"
"	"	1	in Boreal Cove	"
"	"	4	on Muir Island	1994
"	"	1	on Barred Owl Trail	1994
"	"	2	in Boreal Cove	"
"	"	1	at Foggy Mountain	"
"	"	2	at LaCrete Community Forest	"
"	"	1	at Wabasca	"
Gray-cheeked Thrush	Probable	many pairs	at Margaret Lake	July 1993/94
"	Observed	1	on Barred Owl Trail	May 29,1993
Varied Thrush	Observed	1	on Barred Owl Trail	1993
American Pipit	Observed	1	1 km south of research station on Peace River bank	June 23, 1993

Species	Breeding Evidence	Number	Location	Date
Connecticut Warbler	Possible	1	on Muir Island and in Boreal Cove	June 1993
"	"	1	on Barred Owl Trail and on Muir Island	June 1994
Mourning Warbler	Possible	1	at Atlas Landing and Muir Island	June 1993/94
Blackburnian Warbler	Possible	2	on Muir Island	May & June 1993
"	"	1	in Boreal Cove	"
"	"	1	on Muir Island	June 1994
"	"	1	on Barred Owl Trail	"
"	"	3	in Boreal Cove	"
"	"	1	at LaCrete Community Forest	"
"	"	1	at Wabasca	"
American Tree Sparrow	Possible	1	at Loon Bog	May 14, 1993

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An Alberta Bird Record Committee Sees the Day

Jocelyn Hudon

I wish to announce the creation of a Bird Record Committee for Alberta (hereafter, the Committee) whose function will be to actively gather documentation and evaluate records, past and present, of rare birds for the province of Alberta. The Committee will meet a pressing need for a record committee in the province. It will also assist with the adjudication of records arising from the Federation of Alberta Naturalists (FAN) Alberta BirdList.

In setting up this Committee, I tried to draw from the varied ornithological expertise and the vast geographical expanse of the province. I am happy to report that six people have accepted the invitation to form a steering committee of the Alberta Bird Record Committee. These individuals are Richard Klauke, Pat Marklevitz, Peter Sherrington, Andrew Slater, Terry Thormin and Cleve Wershler. Eventually, the steering committee will be replaced by a community of individuals elected from various provincial natural history groups. The details of the voting process have yet to be established.

The Committee intends to adjudicate records of rare bird sightings arising from the FAN Alberta BirdList, personal field notes and other means. To achieve this goal, the Committee will gather documentary evidence, and evaluate and categorize past and present claims of rare birds for the province of Alberta. The Committee also hopes to produce annotated lists of species for the province and publish an annual report of its decisions on observations it has considered in the course of the year. Additional roles contemplated by the Committee include educating observers about the proper documentation of bird sightings and setting standards for the evaluation of rarities.

Far from being of no scientific relevance, rarities offer potentially invaluable insights into new patterns of migration, orientation behavior and range extension of birds. Of course, to be of any value, species must be correctly identified. Unfortunately, because of their very foreign nature, rarities require extreme care in their reporting.

The Committee is not as yet ready to evaluate all previous observations of rare birds in the literature and in the hands of meticulous observers. The absence of a dedicated provincial bird record committee for the last two decades has produced a state of affairs where errors in identification and poor documentation of observations have become commonplace. The Committee wishes first to assess this state of disarray. Hence, observers are requested to hold on to their personal field notes of previous years until the Committee is in a better position to deal with them. The Committee has begun compiling well-publicized claims of rare birds in the province and soon will begin the process of gathering documentation to substantiate these claims. Patience will be of rigor here.

In the meantime, the Committee encourages observers to send *current* observations of rare birds, with proper documentation, to the Provincial Museum at 12845 - 102 Avenue, or to FAN via their Alberta BirdList. Efforts will be made to evaluate these observations and publish decisions as promptly as possible.

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Book Reviews

Bird Brains: The Intelligence of Crows, Ravens, Magpies and Jays.

By Candace Savage, 1995.
Greystone Books, Vancouver, B.C.
$35.00 ISBN 1-55054-189-7.

Review by Ivan Shukster

Candace Savage's latest book is devoted to a group of birds with few friends among humans: the Corvidae or crow family. The central theme of *Bird Brains* is exactly what the subtitle states, the intelligence of the corvids including crows, ravens, jays and magpies.

As in her other books (such as *Peregrine Falcons, Wolves* and *Wildcats*) Savage has combined interesting nature writing with compelling color photographs and the latest and best research from specialists. (Photographers represented in *Bird Brains* include Tom and Pat Leeson, Jim Brandenburg, Michael Quinton, Wayne Lynch and Art Wolfe.)

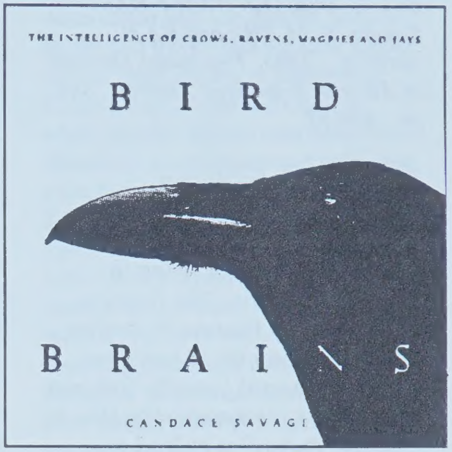
Even though the photographs depict corvids from around the world, the text is mainly American-based with some information on European species. The type is large with double spacing between lines. In addition to the photographs and main text, there are many sidebars, which include poems, Aesop's fables and mythology concerning the various members of this fascinating bird family. The effect is very appealing and likely to tempt more than just the hard-core naturalist to take *Bird Brains* off the bookstore or library shelf.

The reader is taken inside a bird's brain and given an explanation of how it functions. All birds, even the smart corvids, have a small cortex—that portion of the brain where humans do their thinking. Instead, birds rely heavily on the hyperstriatum, a part of the brain we do not even possess. As one would expect, the larger the hyperstriatum, the smarter the bird. The members of the crow family, all possessing a very large hyperstriatum, rank up at the top of the intelligence scale. In fact, these birds' brain to body ratio is almost equal to that of humans and is greater than that of chimps or gorillas.

Some of the ecology and behavioral patterns of the Corvidae are explained by their intelligence. A dozen species of New World jays plus American and Northwestern Crows are among the species that exhibit cooperative breeding behavior. In cooperative breeding, other individuals in addition to the breeding adults assist in raising of young. The helpers are related to the breeding pairs and may be up to four years old. It is hypothesized that this role of being a helper educates the younger birds and increases their chance of success when they venture into the realm of breeding for themselves. This behavior has also been characterized by some as an adaptation to a shortage of breeding territories.

Even casual observers will have noticed crows and magpies flocking together, especially in the fall. Savage attributes this behavior to an intellectual need for social stimuli. How the birds obtain and cache food is also investigated in *Bird Brains*. Many examples of birds remembering exactly where they stashed their caches are given.

If you are seeking an academic teatment on the intelligence of the Corvidae this book may be a disappointment. Some of the studies that are quoted in *Bird Brains* include those of Bernd Heinrich, Konrad Lorenz and Irene Pepperberg. However, only snippets of these researchers' work are provided in the text. In some ways, *Bird Brains* is only a sampler, enticing readers to seek the actual studies by these authors.



Heinrich's writing, for example, his *Ravens in Winter,* while not a picture book,is very readable and enjoyable.

Most readers will find *Bird Brains* a well-researched, highly interesting and eloquently written book. Candace Savage's enthusiasm about the Corvidae and their intelligence is contagious. Perhaps after reading *Bird Brains* you will be able to look at a crow or magpie with her same enthusiasm. The birds' hoarse croaking may begin to sound like conversation, and maybe you, too, will see a glimpse of intelligence in their eyes.

Ivan Shukster, a physical geographer and naturalist, is a Past President of the Grasslands Naturalists and a former FAN Director. He is one of the authors of Prairie Raptors, *recently published by the Canadian Wildlife Service.*

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Alberta Butterflies

By C.D. Bird, G.J. Hilchie, N.G. Kondla, E. M. Pike and F.A.H. Sperling. 1995. Provincial Museum of Alberta, Edmonton Alberta. 349 pp., $44.95.

Review by John Acorn

In 1971, I was a twelve-year-old butterfly collector living in Edmonton, Alberta. *The Peterson Field Guide to Western Butterflies* would not appear for 15 years, and my most treasured butterfly book was the awkward, black-and-white *How to Know the Butterflies* by Paul and Anne Ehrlich. When I heard that Dr. Charlie Bird, at the University of Calgary, was writing a book about Alberta butterflies, I was delighted. I wrote to Dr. Bird, sent him records and specimens, and anxiously awaited a publication I desperately wanted and needed. Now 24 years later, the book is finally here, coauthored by three friends from my teen years—Felix Sperling, Ted Pike and Gerry Hilchie—and a former co-worker in the Alberta Parks Service, Norbert Kondla.

With the publication of *Alberta Butterflies* our province is now in the enviable position of having two guides to its butterfly fauna. The first was my own *Butterflies of Alberta* (Lone Pine Publishing, Edmonton, 1993), which I wrote as a beginner's introduction to the group, intended to inspire local naturalists to become butterfly watchers. At the time it was published, I had all but given up on ever seeing the second book, but its authors and I agreed that we were working on two very different books, with different objectives and different target audiences. Indeed, *Alberta Butterflies* is a much more detailed and comprehensive treatment, intended for a more advanced group of naturalists and aimed at butterfly collectors rather than butterfly watchers. Happily, the two complement one another in ways that would not have been possible in a single book.

Alberta Butterflies is a large-format (8.5" x 11"), hard-bound volume, very professionally produced on high quality paper with crisp text and fine photographic reproduction. It is generously illustrated with color photographs of pinned specimens, a few live butterflies and representative butterfly habitats. A small number of historical photographs are included, along with many excellent pen and ink drawings by Milton Fredlund, including illustrations of a great number of larval food plants. An introductory chapter treats the history of butterfly study in Alberta, as well as butterfly biology, systematics, collecting and gardening. Each species receives its own treatment, including sections on etymology (of the scientific name only), identification, life history, range and habitat. Dot maps are included for each species' range, along with a corresponding sketch map of the North American range and photographically illustrated dichotomous identification keys.

As with any regional treatment, the most useful aspect of this book will be its dot maps. One can, at a glance, get a rather precise impression of the range of a species, as well as of the number of times the species has been encountered,. Unfortunately, although the text distinguishes subspecies, the maps do not. The maps are color-coded with the four "biomes" of Alberta, giving an interesting illustration of the fact that these so-called natural regions are based on such things as tree species and topography, since their borders rarely, if ever, correspond with those of butterfly ranges.

The second uniquely useful aspect of this book is the ten page account of the major figures in the entomological history of butterfly study in Alberta. Each person's contribution to the study of butterflies is briefly summarized, in roughly chronological fashion. I found it unfortunate that this section wasn't more extensive, and in my opinion a fine opportunity was missed to point out the impact of key discoveries and publications outside of Alberta on the activities of those working within the province. The goal of any history should be to put the present in perspective, as much as to credit our predecessors, but regrettably no mention is made here of the tremendous recent shift away from collecting and toward butterfly watching, or the emergence of the very successful international naturalist group, the North American Butterfly Association. As well, despite mention that over 300 people collected the records used in this book, only 40 such names appear in the acknowledgments. I know that my childhood friends Kate Shaw, Mike Chrustawka and Bob Davidson were delighted to think that their names would someday appear in the book, but sadly they and some 260 others seem to have been missed.

If butterfly watching has somehow been overlooked in this volume (it gets brief, polite mention on page 25), butterfly gardening has not. However, if you plan to create a butterfly garden you must first master a dense, five page chart in which you begin by identifying "the biome in which a butterfly garden will be established," and then proceed to cross-reference the scientific name of the plants you are considering planting with the code numbers of butterflies that might visit them. There is much valuable information here, but for most readers it will be hopelessly irretrievable. One wonders why the publisher did not intervene and improve the fashion in which the information was presented.

The other lengthy table in this book is the checklist of Alberta butterflies. This a welcome update to my own checklist, but many readers will find fault with the new list as well. For one thing, it is entirely composed of scientific names. The existence of a standardized set of common names is never mentioned, and except in a few instances elsewhere in the text, no attempt is made to provide lists of synonyms for the names used in this book. The list also includes 17 species that are merely hypothetical and have never been discovered in the province. I have often jokingly suggested that lists like this are based on a school of biogeography that maintains the following: all species are found everywhere—they are merely far less common in some places. Until these hypotheticals are confirmed, the total sits at 160 species, and the claim that we have 181 species and subspecies here is an overstatement.

My entomological friends have been very much impressed with the identification keys in this book, since they are such an improvement over the norm. Each couplet is illustrated with color photographs, and the structure of the couplets is mirrored in the arrangement of photos, connected by a branching diagram, which is especially useful for backtracking. For pinned specimens, these keys will be a tremendous blessing, although their value in the field will be minimal. Of course, the construction of a good key is a very demanding job, and with five authors dividing up the work it is no surprise to find that some keys are easier to use than others.

The species treatments for the skipper family are very good. However, it is apparent that the manuscript was not revised by its author in the years immediately preceding publication. For one thing, the most westerly record of Hobomok Skipper, at Blackfalds, is missing despite my passing it on. This is a minor oversight, but the treatment of the European Skipper is unbelievably out of date. This recently introduced species is now widespread and extremely common (*the* most common butterfly on both of Edmonton's official butterfly counts), yet the text only states that "a population has been found south of Edmonton," and that "other local populations are expected to be discovered in the future."

The swallowtail and parnassian family is very well presented, as one would expect with Felix Sperling being a top expert on the group. Dr. Sperling also wrote the section on whites and sulphurs, and it is equally impressive. Two species have been split since the publication of my book (Queen Alexandra's Sulphur and the Mustard White), the Hecla Sulphur has been removed from our checklist, and the reasons for these changes are clear. My only criticism of this chapter is that photos are not provided for both wing surfaces of both sexes and color morphs for all species. This book comes so close to being a completely illustrated treatment that one wonders why it falls short, especially when specimen photos are all that was needed.

The section on gossamer-winged butterflies is also excellent, but suffers from the same shortcoming. The species treatments seem good, but the reasons for lumping Rustic and Arctic Blues (a long-standing problem, to say the least) are never explained. The rest of the book is devoted to the brush-footed butterflies, which are here treated as three separate families, in contrast to the arrangement in most other guides. For me, the highlight of this section is the insightful treatment of the Atlantis group of greater fritillaries, which has traditionally been more than a bit confusing. Readers should note, however, that the couplet distinguishing the two Pearl Crescents, *Phyciodes tharos* and *P. cocyta*, has the names reversed and that the male and female photos of the Common Wood Numph are also mislabeled.

So what is missing from this book? Well, for one thing, it's not much fun. The joy of butterfly chasing, the beauty of butterflies—all of these things have been suppressed. I know from my own experience that the study of butterflies is frowned upon by those who consider such "popular" subjects to cloud one's sense of objectivity. I also know that the five authors of this book get as much joy out of butterflies as I do, and the fact that this is not apparent is a terrible shame. The other thing that is missing is mention of the annual butterfly counts that are coordinated by the North American Butterfly Association and the Xerces Society. In the past three years we have staged nine of these counts in Edmonton, Calgary, Lethbridge and Opal, in which dozens of keen naturalists have identified, documented and published records on somewhere between 2,000 and 3,000 butterflies—the equivalent of a rather large specimen collection. I sincerely hope that the authors of this book will become more involved in the butterfly watching movement now that they are naturalist celebrities, although we have already lost Felix Sperling to a job in Berkeley and Norbert Kondla to B.C.

On the whole, this a welcome and valuable book. Everyone with an interest in Alberta butterflies should have a copy, or at least know of its existence. If the book seems old-fashioned it is because it was, in a way, approximately 25 years old the day it was published. The authors have brought to fruition their original vision of a traditional treatment of the Alberta butterfly fauna, thanks in large part to the support of the Provincial Museum of Alberta which was, until recently, unaware of the manuscript's existence. In this sense, we have seen the resurrection of a "lost" manuscript, and as a result, it is also an instant classic. Had it been published even 10 years earlier, many of the criticisms above would not have applied, since butterfly guides at the time were much more like this one. Nonetheless, it is finally here, and we can finally begin to use the information within its covers as a foundation upon which to build an even more impressive, more inclusive knowledge of the province's butterflies

John Acorn, Alberta's "Nature Nut," is also President of the Edmonton Natural History Club.

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